rve
9
690

THE PLANT DISEASE REPORTER

Issued By

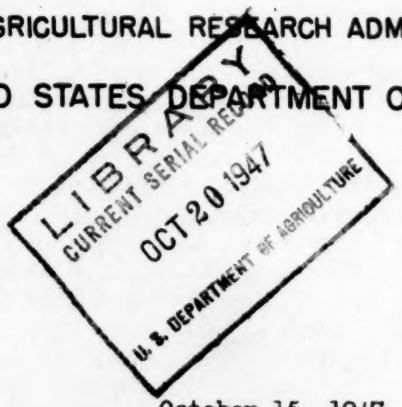
THE PLANT DISEASE SURVEY

Division of Mycology and Disease Survey

BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING

AGRICULTURAL RESEARCH ADMINISTRATION

UNITED STATES DEPARTMENT OF AGRICULTURE



Volume 31 Number 10

October 15, 1947

The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

THE PLANT DISEASE REPORTER

Issued by

THE PLANT DISEASE SURVEY
DIVISION OF MYCOLOGY AND DISEASE SURVEY

Plant Industry Station — Beltsville, Maryland
Volume 31 — October 15, 1947 — Number 10

IN THIS ISSUE

Leaf mold is a cause of severe loss of tomato crops in the Peruvian Montaña, according to Bowen S. Crandall, page 358

H. Loran Blood, page 366, reports diseases appearing in Utah tomato fields during 1947

Progress reports on late blight, page 367

Potato diseases observed in the Hastings region of Florida in 1947 are reported by A. H. Eddins, page 375

Shorter notes on potato diseases, page 376, include reports of rhizoctonia and scab on the Chippewa variety in Florida, by A. H. Eddins and A. A. Foster, and Pythium on seed pieces in Maine, by Donald Folsom

H. H. Foster reports observations on pole bean varietal reaction to rust in Mississippi, page 378

Destruction of a Utah bean crop by mosaic infection is reported by H. Loran Blood, page 384

Incidence of melon mosaic in southern California in 1947 is reported by John T. Middleton, page 385

Onion downy mildew was again severe in Louisiana, according to E. C. Tims, page 386

G. B. Ramsey et al. report losses of fruits and vegetables received in Chicago as indicated by dumping certificates, page 387

Conditions favored development of grape downy mildew in Illinois this year, according to G. H. Boewe, page 391

Occurrence of bitter rot on sour cherry in West Virginia is reported by Carlton F. Taylor and Clyde E. Peet, page 392

Diseases found in Rhode Island nurseries in 1947 are reported by Sylvan I. Cohen, page 394

Some new diseases for West Virginia and Louisiana are reported by H. L. Barnett and W. E. Cooper, respectively, page 397

A correction, p. 397

Check list revision, by Freeman Weiss, page 398, with a brief index to the entire series

August weather, page 414

CLADOSPORIUM LEAF MOLD OF TOMATOES IN THE PERUVIAN MONTAÑA

Bowen S. Crandall[1]

The regular commercial varieties of tomato, Lycopersicon esculentum, from the United States, under dry season trial at the Tingo Maria Station[2], have proven themselves well adapted both in quality and quantity of yield. However, wet season plantings, and dry season plantings maturing after onset of the wet season, have in general given low yields or been total failures. The high nutritive value of the tomato and its excellent dry season production record; coupled with the decided lack of fresh foods in the region, especially during the wet season, indicated the need to find or develop a variety suited to, or a means of growing tomatoes on a year-round basis. This report gives the background of the observations leading to the determination of the limiting factor to wet season tomato growing, its cause, predisposing ecological conditions, and methods of correcting the situation.

Epidemiology

Early in October 1944, coinciding with the advent of the wet season, the entire experimental block of tomatoes at the Station was destroyed by what appeared to be a combination of disease and insect attack. Toward the end of September a severe infestation of leafhoppers had been noticed on the plants and some fungus injury apparently followed the insect attack. An attempt was made to control this infestation with nicotine sulfate and with a rotenone decoction made from Lonchocarpus roots. Due in part to the inadequate equipment available little effect was noticed. On October 13 the disease became epidemic and various spray materials were tried. No control was obtained although plants sprayed with lead arsenate at first appeared to be benefited. However, when the entire block was sprayed with lead arsenate and heavy rainfall again occurred no control was apparent. No recognized parasite was found in 1944.

---

[1] Pathologist, Office of Foreign Agricultural Relations, U. S. Department of Agriculture, and Chief, Department of Pathology and Entomology, Estacion Central de Colonizacion en Tingo Maria.

[2] A contribution from the Estacion Central de Colonizacion en Tingo Maria, Peru, a technical agricultural service organization for the Orient of Peru, operated jointly by the Direccion de Colonizacion y Asuntos Orientales, Ministry of Agriculture of Peru, and by the Office of Foreign Agricultural Relations, U. S. Department of Agriculture. This study was made possible by funds provided through the Interdepartmental Committee on Scientific and Cultural Cooperation and funds from the Peruvian Government.

In 1945 the tomato plantings were kept under close observation during the period of change from the dry season to the wet season. During the closing weeks of the dry season leafhoppers, family Jassidae (Cicadellidae) again appeared in large numbers as did also a chinch bug, family Miridae. With the advent of the wet season epidemic losses again occurred. The plants appeared to be in good shape on a Saturday but after the week-end on September 25 it was apparent, even from a distance, that they were in trouble. The leaves throughout the entire planting had a brownish color and were generally wilted. Collections were immediately made and microscopic examination disclosed abundant fruiting of Cladosporium fulvum Cke. on the underside of the leaf surfaces. Subsequently the same fungus was obtained in pure culture. Under the conditions at Tingo Maria the fungus did not produce localized lesions as is reported for the disease in the United States but rather spread over the entire lower leaf surface in areas of indefinite extent. Abundant fruiting occurred on the lower surfaces of infected leaves, giving them a brownish, velvety appearance.

The 1946 losses almost exactly duplicated those of 1945 and there is every reason to believe that the 1944 epidemic was caused by the same fungus, C. fulvum, since essentially the symptoms of the disease and the environmental conditions of the attack were the same. There appears to be strong circumstantial evidence that the fungus is spread or at least aided in its spread by the insects mentioned above. This point will be determined if possible, by experiment, but at present this phase of the problem is still open.

Predisposing Conditions

As mentioned above the attacks of leaf mold have appeared in 1944, 1945, and 1946, coincidentally with the onset of the wet season. Figures 1, 2, and 3 show graphically the incidence of rainfall and the minimum relative humidity for the 24 days preceding the epidemic losses of the tomatoes from this disease. In each year, following a period of dry weather, the leaf mold appeared after a 12-day period with 8 to 10 days of almost continuous rain. Actual symptoms were very pronounced on the first dry day following this wet period. Hours of sunshine and a general summary of the weather conditions prevailing during the 12-day wet period that was concluded by the losses, and the preceding 12 dry days for each year, are shown in Table 1. No mention is made of maximum relative humidity because humidities at night invariably are either in the high 90's or 100 percent; likewise temperatures remain relatively constant the year round, ranging from high 60's at night into the 80's during the day [° F.].

In the United States reports indicate that Cladosporium fulvum occasionally causes some losses in tomato plantings in the Gulf Coast region and at times has caused some damage in the Eastern United States. In the northern States and in Canada where tomatoes are grown under glass during the winter, losses reported as caused by this fungus have apparently been troublesome.

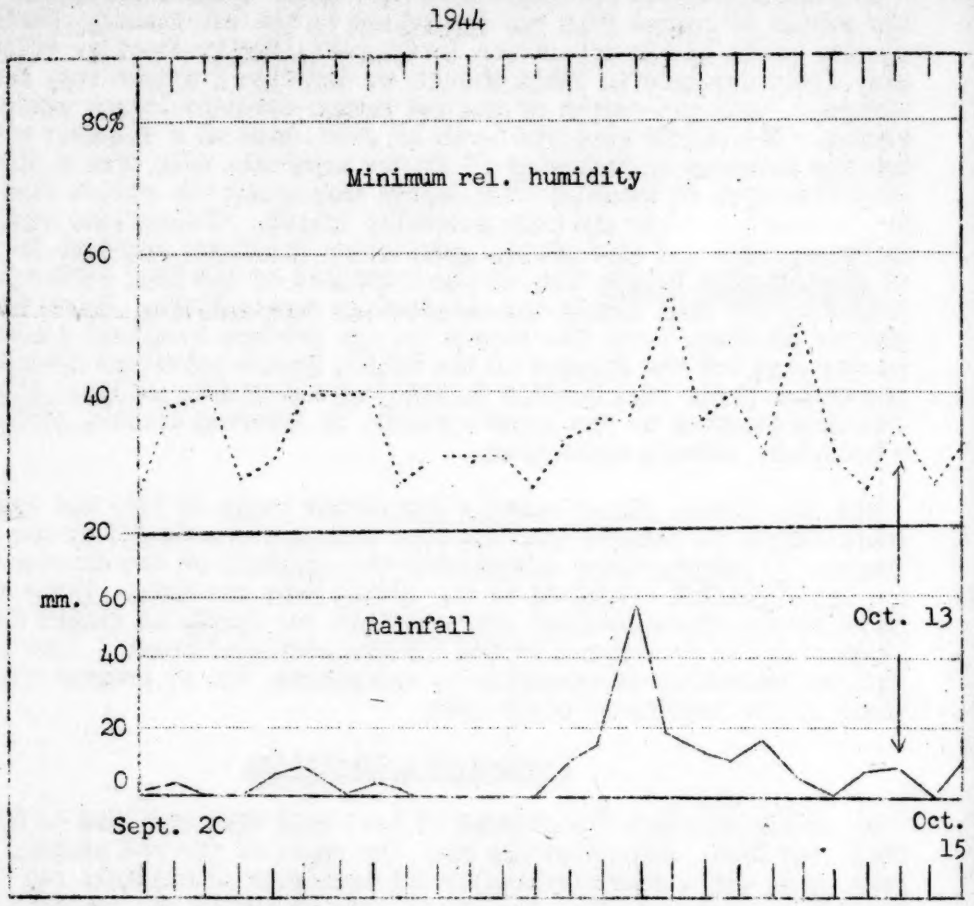


Figure 1. Weather data for 24-day period preceding leaf mold epidemic on tomatoes at Tingo Maria, Peru, in 1944

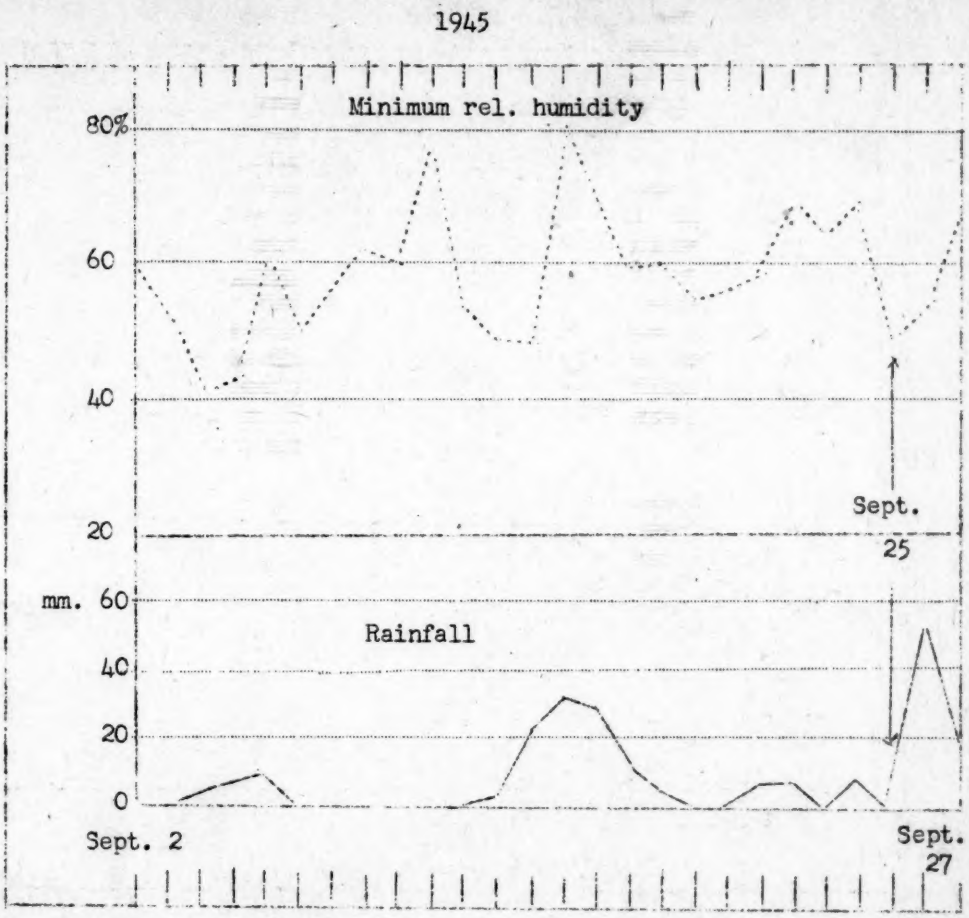


Figure 2. Weather data for 24-day period preceding leaf mold epidemic on tomatoes at Tingo Maria, Peru, in 1945

1946

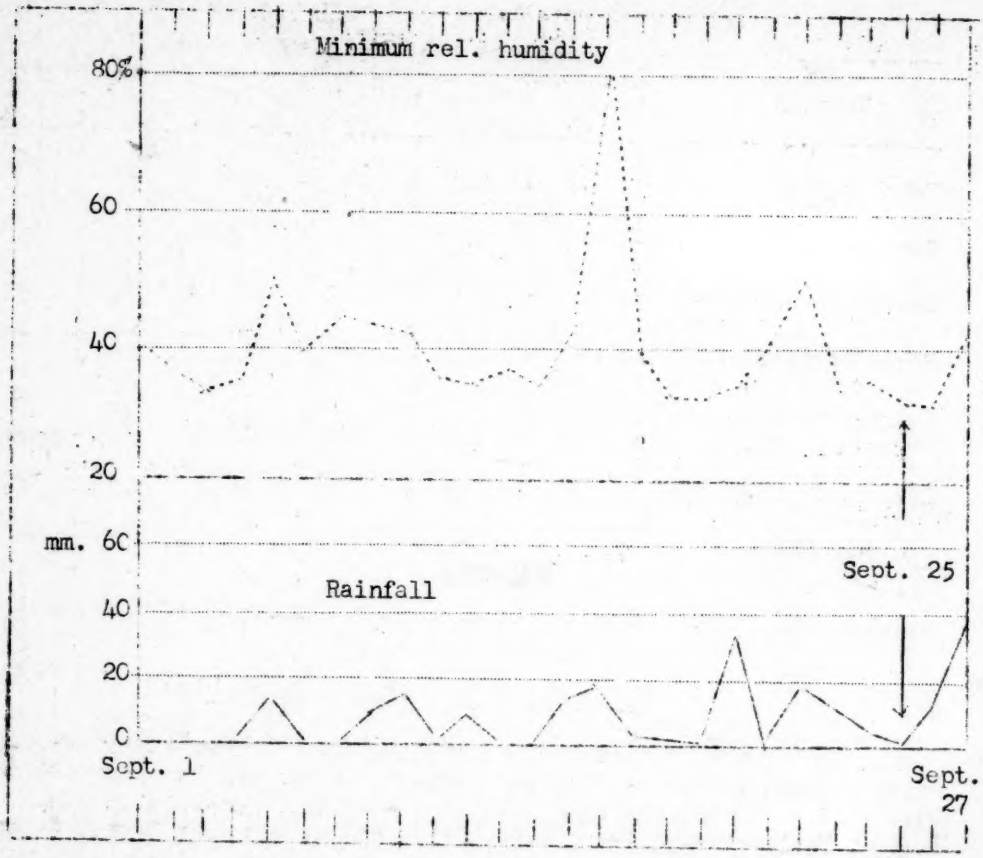


Figure 3. Weather data for 25-day period preceding leaf mold epidemic on tomatoes at Tingo Maria, Peru, in 1946

Table 1. Summary of weather data for 24 days preceding attack by tomato leaf mold at Tingo Maria, Peru; days 1 to 12 being the approximate end of the dry season, days 13 to 24 being the 12 wet-season days preceding the attack.

Weather	1944		1945		1946	
	Days 1-12	Days 13-24	Days 1-12	Days 13-24	Days 1-12	Days 13-24
Total rain (mm.)	26	148	18	124	56	100
Number days rain	7	10	4	8	4	9
Heaviest rain (mm.)	6	54	8	32	18	36
Hours of sunshine	57	34	61	50	95	75
Average minimum humidity (%)	33	36	45	51	38	40
High minimum humidity	40	55	67	70	49	82
Lowest minimum humidity	25	25	31	45	33	31

Varieties Susceptible to Leaf Mold

The 1944 tomato planting wiped out by leaf mold contained the varieties Marglobe, Rutgers, Yellow Queen, Pan-American, Manzano, and John Baer. In 1945 the planting destroyed contained Marglobe, Chatham, Globelle, Yellow Queen, Break O'Day, Stocksdale, and John Baer. No varietal differences in susceptibility were observed in either year. An occasional plant of some of the varieties either escaped infection or was somewhat resistant to the disease.

In 1946, in addition to the varieties already found highly susceptible, Orange King, Scarlet Topper, June Pink, Golden Ponderosa, Improved Rutgers, Jubilee Orange, Rutgers, and Famous Brimmer, were found to be susceptible to leaf mold.

Selection of Resistant Varieties

As soon as the leaf mold disease was recognized requests were made for seed of resistant types from the Agricultural Experiment Stations of Massachusetts, Ohio, Louisiana, and Ontario, and from the Bureau of Plant Industry of the U. S. Department of Agriculture. All requests were answered and 14 lots of seed in all were received.

Judging by the results obtained to date, either these varieties sel-

ected for resistance are not entirely stable or resistant, or new strains of the Cladosporium have been encountred. Cladosporium fulvum appears well adapted to the montaña of Peru and could very well be native to this region. A number of wild varieties of tomatoes occur in Peru and in this zone that could be the resistant hosts of the fungus. The Peruvian tomatillo varieties observed have all been highly resistant to or immune from the disease.

In the final tests each year a few individuals of commercial varieties either escaped or had some resistance. These were multiplied and included in the tests. The varieties which as a group were very susceptible but which had one or two survivals were Marglobe, John Baer, and Rutgers Wilt-Resistant. These varieties had been under trial at the Station for several years, and it is possible that natural selection had occurred. In general the progeny of those selections have been quite resistant. As mentioned, in all cases leaf mold-resistant varieties were not entirely resistant when received. Selections of outstanding plants of each variety were made and in later tests the progeny of these selections have shown outstanding resistance[3].

Final trials of the varieties will be run during 1947, but mainly to evaluate yields of the selections in both wet and dry seasons. Selections for resistance to leaf mold have been uniformly consistent for some time and these varieties can now be considered as promising for use in this zone. The following have, in their selected progeny, been found to be highly resistant: Improved Bay State, Mold Resistant Waltham Forcing, Globelle (Ohio mold-resistant selection), Vetomold[4], Vetomold 121[4], Improved Vetomold 121[4], a Globelle type from Louisiana (L.S.U. #6-1-1), and a Turrialba, Costa Rica, selection #31-0149-F5.

Results of the final trials will be made available to all cooperators in a special report. In the meantime the above selections are being distributed for trial in other regions of Peru and are now being introduced for small-scale plantings among the farmers of this zone.

Leaf mold is apparently a factor in the growing of the tomato throughout the Latin American tropics, and a recent Plant Disease Reporter note by Smith[5] indicates it causes trouble in the South Pacific. The

---

[3] Crandall, Bowen S., and Charles F. Swingle. Studies on tomato diseases in the Amazon Basin of Peru. Proc. Amer. Soc. Hort. Sci., Boston Meeting, Dec. 1946.

[4] These varieties received from the Massachusetts Station were outstanding in resistance but from other sources varied, and in one case were completely susceptible.

[5] Smith, Paul G. Some vegetable diseases in the South Pacific. U. S. Bureau of Plant Industry, Soils, and Agricultural Engineering Plant Dis. Reptr. 30 (10): 376-379. Oct. 15, 1946.

use of leaf mold-resistant varieties, developed originally for use in greenhouses, seems to furnish a quickly available means for combating the disease. If, as seems possible, Peru, which is the home of the tomato, is also the source of the leaf mold disease, then selections made in the face of severe field attacks of the disease should be highly resistant to the various strains of Cladosporium fulvum encountered elsewhere where tomatoes are now grown under conditions conducive to attack by leaf mold.

DEPARTMENT OF PATHOLOGY AND ENTOMOLOGY
ESTACION CENTRAL DE COLONIZACION
TINGO MARIA, PERU

DISEASES IN UTAH TOMATO FIELDS IN 1947

H. Loran Blood

The weather during the planting season, from May 5 to 20, 1947, was very favorable for setting tomato plants and the crop generally started to grow quickly and vigorously. Unseasonably high temperatures prevailed during most of the period. Even though it was hot and dry, an abundance of irrigation water made it possible to proceed with the tomato planting schedule and provided favorable conditions for rapid plant growth.

The warm period, which extended until May 28, was followed by a month of cool weather. Frequent and heavy rains fell during the first part of this period and many growers were fearful that the young, vigorously growing plants would receive too much water. The heavy rains ceased about June 12 but the weather remained cool until towards the end of the month. Occasional showers during the cool period were not sufficient to maintain the moisture supply and the soil dried out considerably. The weather turned hot and dry late in June and remained that way during July.

This sudden change in the weather caught the tomato growers off guard. Most of them had not realized how dry the soil had become during the cool period. Since they had been concerned about too much water earlier in June, they failed to watch their fields closely enough during the drier period. When the weather turned very hot and dry most of the fields quickly developed a condition of drought and suffered for water before the growers realized what had happened. These conditions contributed to an unusually large amount of blossom drop during the month of July. As a result the crop of fruit that set is lighter than usual in most of the fields in the State.

Blossom-end rot is more prevalent than usual. Several fields have been observed with 10 to 15 percent of the fruit affected. One field in Davis County was found with fully 50 percent of the fruit over one inch in diameter destroyed.

Curly-top is not so prevalent as it was expected to be. The largest spring population of leafhoppers on the desert since the epidemic year of 1940 was greatly reduced by the very hot dry May and the unusually heavy rains of early June. Stands are 5 to 10 percent less than usual because of the death of curly-top infected plants imported from the Moapa Valley and set into the fields. From 5 to 20 percent of the plants remaining in the fields have developed curly-top following the migration of the leafhoppers from the local breeding areas.

Verticillium wilt symptoms began to appear in infested fields about August 5. Plants in fields that have been cropped repeatedly with potatoes and tomatoes are rapidly developing the disease in a serious

form. Eighty-six percent of the plants in one field recently visited had developed the disease.

Farmers are becoming more and more conscious of the importance of using clean soil for the production of tomatoes, but there are some who still try to produce tomatoes on soil that has a long history of tomato and potato culture. The disease has been found in 4 and 6 percent of the plants, respectively, in two fields that had never grown tomatoes before. Is the wilt organism indigenous in our soil or is it being imported from the seed-beds?

Mosaic is more prevalent than usual this year. Aphid populations are also much larger than usual. From 2 percent to as high as 89 percent of the plants within the various fields are infected with the disease.

Spotted wilt is about as prevalent as usual. Occasionally an infected plant is observed as one passes through the fields. These occasional plants are observed more often in the Davis and Weber County area. One field seen along the railroad right-of-way contained over 50 percent of the plants infected. The plants on the side of the field next to the railroad were 100 percent infected. The percentage of disease gradually diminished with distance from the right-of-way.

Fusarium wilt is rarely seen. Two plants infected with this disease are all that have been observed so far this year.

Weak plants that have not grown for some reason or other are observed in nearly every field planted with imported plants. In some fields as high as 25 percent of the plants are weak and unproductive. These plants exhibit the symptoms of a severe infection of Verticillium wilt but attempts to isolate the pathogen from the stems have failed. Either the plants were hardened too much in the plant bed before harvesting or they were weakened beyond recovery in the pulling, packing, shipping, and transplanting procedures. They behave very much as though they had been hardened too much and the pericycle tissues seem to be unable to produce vigorous adventitious roots.

UNITED STATES DEPARTMENT OF AGRICULTURE,
UTAH AGRICULTURAL EXPERIMENT STATION, LOGAN

*PROGRESS REPORT ON LATE BLIGHT

POTATO LATE BLIGHT IN CANADA: Late blight has spread slightly in Queens County, PRINCE EDWARD ISLAND, in the last week. It has appeared in Kings County, but not in Prince County. Weather has been favourable for late blight development, but there has been no threat of an epidemic (R. R. Hurst, Aug. 8). Little change has occurred in the situation in Prince Edward Island in the past week. The disease

has been reported from one field in Prince County by the inspection service. There is no threat of an epidemic. Growers are continuing their spray programme in the event of the weather becoming favourable for further spread. (L. C. Calbeck, Aug. 16).

Potato specimens affected by late blight were sent from a garden, at Digby, NOVA SCOTIA, August 7 (H. N. Racicot). Late blight has been found in several more coastal areas in Kings County, and in a field near Oxford, Cumberland County. None has been reported in the Annapolis Valley (J. F. Hockey, Aug. 15). Late blight was severe about Scotts Bay, Kings County. A slight infection was reported in Cumberland and Colchester Counties (O. W. Lachaine, Aug. 30).

Potato late blight has been reported in York, Carleton, Victoria, and Madawaska Counties, NEW BRUNSWICK, by the inspection service. It extends along the Saint John River Valley from Fredericton to St. Leonards, infection varying from slight to severe. More favourable night temperatures and considerable fog now favour its extensive development (J. L. Howatt, Aug. 16). Late blight is general and conditions are favourable for its spread in all parts of the Province (C. W. Lachaine, Aug. 30).

Late blight was observed by Professor Campagna at Grande Rivière, South Gaspé County, QUEBEC, on July 30 and 31. Leaf infection was severe in some fields. A trace appeared today in our experimental plots at Ste. Anne de la Pocatière, Kamouraska County (C. Perrault, Aug. 9). Heavy infection was found in a small field in the Lanoraie district (Fernand Godbout, Aug. 11). Late blight was observed in Lake Saint John, Chicoutimi, and Terrebonne Counties, in the week ending August 9. It had already destroyed one field near Dolbeau, Lake St. John County, by August 6. It has been observed by inspectors in all potato-growing districts in Quebec, except Rimouski and parts of Temiscouata Counties. Weather conditions are everywhere favourable for spread of late blight (B. Baribeau, Aug. 9, Aug.16). In Cookshire in Eastern Townships [counties in Quebec between the St. Lawrence River and New York, New Hampshire, and Vermont] late blight infection is general in several fields; from 35 to 40 percent of the foliage has been destroyed in fields under observation. In Kingsey and surroundings about forty miles west no trace of late blight was observed. In Joliette and Berthier Counties the disease is severe throughout on account of the cool temperatures and moisture prevailing during the nights, brought about by the marsh lands. None was observed around Quebec city down towards the Gulf except for a very few isolated cases (H. Genereux, Aug. 27). Late blight has completely destroyed a few fields in South Gaspé (E. Campagna, Aug. 27). The drought that prevailed over the last two weeks in Quebec has checked the disease, especially in the lower St. Lawrence Valley. There are districts and some isolated fields where conditions were more favourable for late blight spread, but generally speaking the disease is not in an epidemic stage as yet (C. Perrault, Aug. 27). Late blight was reported in nearly all potato districts in Quebec, a slight infec-

tion being general (O. W. Lachaine, Aug. 30). Late blight of potatoes was first found early in August and then became quiescent due to the heat and drought. During the past week, however, the disease is again beginning to develop more severely in Laval County (E. Lavallee, Sept. 11).

Potato late blight was observed at Colgan, Simcoe County, ONTARIO (R. E. Goodin, Aug. 11). Late blight is present in four potato fields in Prescott County. Hot dry weather in the past two weeks has checked the disease (O. W. Lachaine, Aug. 16). Late blight was found in several potato fields on the Bradford Marsh (Simcoe and York Counties) by R. E. Goodin on August 11 (I. L. Conners, Aug. 14). Two reports of moderate outbreaks of potato late blight from Emo, Rainy River District, have been received (J. E. Machacek, Aug. 28). For the week ending August 30, late blight was reported to be prevalent in Ontario and Durham Counties on potato. In eastern Ontario it has been seen in several fields on Green Mountain, but dry weather has prevented any appreciable spread (C. W. Lachaine, Aug. 30). Late blight was reported to be severe in the unsprayed rows in a potato spraying experiment at Kemptville, on September 6. Traces have appeared in some of the sprayed plots (H. N. Racicot). Late blight was reported in one unsprayed potato field in Simcoe County (O. W. Lachaine, Sept. 8)

Potato late blight was found in the University plots, Winnipeg, MANITOBA, on August 22 but was not reported until today. A survey of the Winnipeg area on August 25 and 26 revealed no other attacks (J. E. Machacek, Aug. 28). Late blight is reported as causing slight damage to potatoes near Port Arthur, also at Sturgeon Creek and Lydiatt. The disease is increasing rapidly in severity on the University Farm, Fort Garry; some diseased tubers are already observed (J. E. Machacek, Sept. 5). New outbreaks of late blight have been observed at Dauphin and Sprague. In the Winnipeg area the disease has been found in several more fields. Due to excessive cracking of the clay soil in the Red River Valley, infection of exposed tubers is fairly abundant. Weather is mostly sunny but cool with relatively heavy dews at night (J. E. Machacek, Sept. 9). -- Reports transmitted by I. L. Conners, Canada Department of Agriculture, Central Experimental Farm, Ottawa.

TOMATO LATE BLIGHT IN QUEBEC AND ONTARIO: No late blight has been seen on tomatoes in the Montreal district, QUEBEC, although most potato fields have become affected and many are dying off from blight (E. Lavallee, Aug. 15). Late blight was found yesterday in one field of tomatoes at St. Martin, Laval County, affecting a few plants severely. Many fruits are rotting (E. Lavallee, Sept. 11).

Late blight on tomatoes was reported from Northumberland County, ONTARIO (G. H. Berkeley, Aug. 11). On August 26, seven tomato fields were examined in Norfolk and Brant Counties. Late blight was severe on leaves and fruits over a large part of one field, prevalent in another where a nearby field of potatoes showed no late blight, traces in a third and no infection in a fourth field, in Norfolk County. It was

severe over one-third of one field and unobserved in two others in Brant County. When inspected, high humidity prevailed and most lesions were sporulating profusely. The agricultural representatives of these two counties were advised to publicize the need to spray or dust with fixed coppers wherever equipment was available (J. D. MacLachlan, Aug. 27). Tomatoes affected by late blight were received from a commercial grower near Peterborough, on September 2. In a garden of staked tomato plants at Guelph, most of the leaves were dead from blight and many of the fruit affected on September 5, the disease being first observed by the grower on September 1. Within a few feet of the tomatoes, there were two volunteer potato plants, apparently affected from the tomatoes (J. D. MacLachlan). -- Reports transmitted by I. L. Conners, Canada Department of Agriculture, Central Experimental Farm, Ottawa

LATE BLIGHT IN MAINE: As of August 18 moderate to severe infection of potatoes is prevalent in southeastern Aroostook County, severe infection in central Maine in southern Piscataquis and adjacent Penobscot and Somerset Counties, and slight amounts in Kennebec and Waldo Counties in southern Maine. The reports have been compiled by field men of the Extension and Experiment Station offices. The general opinion of these men is that the high humidity that has accompanied the recent heat wave is the cause of the spread. Some growers in central Maine (Piscataquis County) are still attempting to control the disease but with little success. One large grower has good control, the result of spraying every other day during the past two weeks. Weather conditions have been unusual. One Extension man reports finding the late blight fungus sporulating in a field when the temperature was 88° F. The Weather Bureau later reported the humidity to be 99 percent. This combination of temperature and humidity does not often occur in the potato areas of Maine for any length of time, but this year it has happened for several days in succession.

No estimates of losses have been made except that reports state the loss to be locally severe around the Mars Hill and Dyer Brook area of Aroostook County and that above the Limestone area of Aroostook the losses are generally severe. Around Presque Isle the disease is light, hard to find, and has not spread to any extent. The earlier reported infection in Piscataquis County has spread to parts of Penobscot and the disease is causing serious losses in many fields. The Extension Service is now sending out spray notices every four days. In Waldo and Kennebec Counties the infection is light and not spreading to any great extent.

There have been no reports of late blight on tomatoes. The vegetable extension specialist looked over fields in Franklin, Oxford, and Androscoggin Counties and I have checked commercial plantings in Penobscot, Kennebec, and Waldo Counties. No disease other than early blight has been found. -- M. T. Hilborn, Maine Agricultural Experiment Station, Orono. Aug. 19

LATE BLIGHT ON POTATOES AND TOMATOES IN MASSACHUSETTS: Since the finding of late blight in potato fields on July 18 and in a tomato garden on July 23, the weather has been warmer and drier than normal. No additional cases of blight on tomatoes have been reported. However, the disease has appeared mostly in scant or mild forms in a number of unsprayed potato plantings throughout the State, also in certain sprayed fields in low, damp locations.

All in all, the disease on both tomatoes and potatoes is less pronounced now than it ordinarily is at this time of year. To be sure, most tomato gardens and fields have been dusted or sprayed throughout the season, and this extensive protection may be one reason, along with the warm, dry weather, why late blight has been so scarce on tomatoes. -- O. C. Boyd, Massachusetts State College, Amherst. Aug. 22

LATE BLIGHT IN RHODE ISLAND: Late blight has remained active in well sprayed fields but did not increase materially until the cool, moist period of August 16 to 18. On August 19, I visited the potato fields in the West Kingston area and found Bordeaux-sprayed areas in which the infection had increased to 40 percent during this period. All other fields visited in the region had from 10 to 20 percent blight although they had been sprayed heavily. Many active lesions were found in those fields. Early varieties of potatoes in Washington County were being dug last week, and these are mostly free from late blight. The development of blight in the Newport County area has paralleled that outlined for Washington County.

The trace of late blight reported on tomatoes in Newport County, July 30, has not developed severely in any fields. It was found in an unsprayed field of tomatoes in Washington County on August 8, in trace amounts on foliage and fruits, but has not increased since its first appearance. We do not believe that the tomato strain is present in Rhode Island this year, since the amount of blight on this crop has not increased during the periods of favorable weather in which the disease was highly active on potatoes. -- John B. Rowell, Rhode Island State College, Kingston. Aug. 29

LATE BLIGHT IN NEW YORK ON TOMATO: Late blight on tomatoes is reported from Erie County. O. A. Reinking says it is becoming prevalent in many gardens about Geneva, Ontario County, and has been found in a farmer's field nearby. -- Charles Chupp, Cornell University, Ithaca. Aug. 13.

Late blight of tomatoes was found in one planting at Riverhead, Long Island, on August 29. Infection was very light, and to date none has been found in any other plantings in this area. -- H. S. Cunningham, Long Island Vegetable Research Farm, Riverhead. Sept. 3.

LATE BLIGHT IN PENNSYLVANIA: Late blight on tomatoes has been

gradually increasing during the past two weeks. It has been found in 29 counties but is known to be present in all parts of the State on tomatoes. Fairly heavy loss will occur in many tomato fields which were either unsprayed or undusted or did not receive adequate fungicide applications.

Late blight on potatoes has been increasing more rapidly than on tomatoes. It has been reported from 36 counties but is known to be present in all parts of the State. Unsprayed and undusted fields have usually been killed. Inadequately sprayed and dusted fields usually show heavy loss. -- R. S. Kirby, Pennsylvania State College, State College Aug. 22

LATE BLIGHT IN DELAWARE: Despite continued hot dry weather late blight has increased somewhat in untreated tomato fields, particularly as regards fruit infection. Untreated fields in Kent County with 25 percent fruit infection on July 31 are now showing 50 to 75 percent fruit infection, and untreated fields in Sussex and Newcastle Counties that showed no fruit infection on July 31 are now beginning to show infection. Well-treated fields, either sprayed or dusted, show little or no foliage infection and no fruit infection. There is no question in Delaware that treatment is controlling late blight and that it is profitable. Indeed, we attribute our relatively good position as regards late blight to the fact that approximately 75 percent of the commercial acreage has been treated on a definite schedule. The quality of the fruit from treated fields is much superior to that from the untreated fields. Growers will shortly apply the last fungicide treatment as the bulk of our crop will be harvested by August 30. (Aug. 13)

Continued hot, dry weather has just about stopped late blight development in Delaware. (Aug. 20).

Late blight was found on late Dakota Red potatoes at Selbyville, Sussex County, on August 25. Infection was light and scattered. (Aug. 28). -- J. W. Heuberger, University of Delaware, Newark

LATE BLIGHT IN MARYLAND: Late blight was found on August 7 near Cumberland in Allegany County on tomatoes and potatoes growing in adjacent fields. This is the only new case since the last report on August 6.

A survey of tomato fields in all counties on the Eastern Shore south of Queen Annes County was made on August 11 to 13. Active late blight was found only in Worcester County (reported previously) where freshly produced spores could be found on leaf lesions in favored locations. There was no indication that the disease was spreading.

Severe defoliation of tomato plants in parts of Dorchester, Wicomico, and Somerset Counties may have been due in part to late blight infection which was arrested by hot, dry weather. No infected fruits were found and there was no evidence that sporulation had occurred on the leaves in the fields visited in these three counties.

The disease is apparently also arrested in northern Maryland. Only an occasional active lesion could be found in Carroll County on August 14. Weather has been hot and dry throughout most parts of the State during the past two weeks. (Aug. 18)

Three tomato fields were visited in Washington County on August 19 by R. A. Jehle. In one field near Boonsboro that had not been dusted or sprayed and in another near Hancock that had been dusted twice, much of the growth had been killed, apparently by late blight, but the disease had been checked by the hot dry weather. However, 90 percent of the fruit in both fields was destroyed by scald. In another field near Hancock that had been sprayed several times with fixed copper the vines were still healthy and only a trace of sun scald could be found. (Aug. 19). -- Carroll E. Cox, University of Maryland, College Park

LATE BLIGHT IN EASTERN VIRGINIA: A survey was made of the Eastern Shore area on August 18. At that time it was very difficult to find any late blight. This was true even in the Nelsonia-Temperanceville area where the disease was causing serious damage a few weeks ago. Tomatoes were being harvested even from fields that had appeared to be a total loss when the epiphytotic started. The infected leaves had dried up and showed no evidence of recent fruiting of the fungus. Blight-infected tomatoes had rotted and disappeared and the fruit now on the vines was entirely free from blight.

The average temperature at Norfolk during the last nine days has varied from 73 to 84° F. with an average for the period of 80°. Rainfall has been below normal during the first half of August.

A rough estimate indicates that late blight caused serious damage to less than 7 percent of the Virginia crop. In view of the recovery of tomatoes in the seriously affected area, it is doubtful whether the disease has caused a loss of more than 3 percent of the crop.

The small percentage of the crop affected and the slight amount of damage done indicates that spraying or dusting of the crop in Eastern Virginia would not have paid. (Aug. 19).

A tomato disease survey was made in the tomato counties west of Chesapeake Bay (Westmoreland, Richmond, Northumberland, Lancaster, and Middlesex) on August 25. No late blight could be found in any of the counties. Most of the tomato plantings were in an advanced stage of maturity and a bumper crop was being harvested. The fruit was of excellent quality and was free from anthracnose.

The peak of the crop in Eastern Virginia is passed. Excellent yields of high quality fruit have been obtained this year. The market collapsed during the last week of August and very few fruits have been picked since then. (Sept. 3). -- Harold T. Cook, Virginia Truck Experiment Station, Norfolk.

LATE BLIGHT IN WESTERN VIRGINIA: Late blight is present in most parts of Virginia, although it is still very difficult to find on either potatoes or tomatoes. Weather conditions have been very unusual, favorable in some areas and exceedingly dry in others. Many reports have been received concerning late blight, but usually, on checking the reports, it is found that the trouble is due to blossom-end rot or to other causes.

Many of our tomato growers are spraying or dusting with copper (Aug. 12).

On August 20, I visited Floyd County and found that tomato and potato late blight had been quite prevalent for about two weeks. Several tomato fields were severely infected. In fact, almost every tomato and potato patch visited showed symptoms of late blight. The disease was found in Montgomery County on August 20. It is quite likely that late blight is present in most of the mountain counties of southwestern Virginia. Reports have been received from most of these areas stating that late blight was present; however, these reports have not been verified.

Weather conditions remain ideal for late blight, with rains each day and temperature cool at night. (Aug. 22). -- S. B. Fenne, Virginia Polytechnic Institute, Blacksburg

LATE BLIGHT IN WEST VIRGINIA: During August late blight has become severe on both potatoes and tomatoes throughout most sections of the State. Its development was considerably later than last year and because spraying and dusting have been more commonly practiced, the total damage is less than last year. -- H. L. Barnett, West Virginia University, Morgantown. Sept. 5.

LATE BLIGHT ON TOMATO IN OHIO: Late blight has been found in a number of new locations in Ohio. On July 24 it was reported on tomatoes in Franklin County. On July 25 it was reported from the Fremont area, Sandusky County, in a tomato field where air drainage was poor and vine growth was heavy. On August 7 late blight was found on both the leaves and fruits in Fairfield County, near Lancaster.

The disease is quite widespread in Ohio, but in localized areas at the present time. Weather has been extremely hot the past week, and at present there is no danger of spread. -- T. H. King, Ohio Agricultural Extension Service, Columbus. Aug. 11

POTATO LATE BLIGHT IN MINNESOTA: Late blight was present on August 19 to 22 in almost every field of potatoes in the vicinity of East Grand Forks, and Crookston in Polk County, and near Donaldson in Kittson County, in the Red River Valley. In most fields only a trace was found, but in a few there were small areas where the plants were nearly defoliated. Weather there was hot and windy on August 21, 22, and 23; not favorable for blight.

No blight was found in fields examined between Crookston and Bemidji and south as far as Brainerd. It was reported near Two Harbors, on the north shore of Lake Superior, but I do not know how early it appeared there. (Aug. 25)

Mr. R. C. Rose, Extension Pathologist, reports that on September 6 late blight was widespread on potatoes in the vicinity of Duluth. Severity ranged from occasional lesions on Sebago to about 50 percent defoliation on Green Mountain. This epidemic apparently developed during the first week of September. Near Two Harbors the disease has spread very slowly in the past two weeks.

No blight reported on tomatoes yet. (Sept. 8). Carl J. Eide, University of Minnesota, University Farm, St. Paul.

NOTES ON POTATO DISEASES AT HASTINGS, FLORIDA, IN 1947

A. H. Eddins

Fusarium Rot. A Fusarium tuber rot that was first noticed in Canadian-grown seed potatoes in 1944 has continued to increase. Last winter infected tubers were found in almost all shipments of Canadian and Maine seed that were examined on arrival at Hastings.

The causal organism has been identified as Fusarium sambucinum f. 6 Wr. & Rg. Healthy seed pieces inoculated with pure cultures of the fungus sprouted but decayed almost completely within three weeks after they were planted in sterilized soil in 11-quart pails that were kept in a greenhouse. A bacterial organism was associated with F. sambucinum f. 6 in diseased tubers and affected seed pieces rotted almost completely before sprouting when planted in non-sterilized soil.

Late Blight. Late blight [Phytophthora infestans (Mont.) DBy.] appeared on potatoes in early-planted fields the latter part of January. It was first noticed in a field near a garden in which tomatoes were being grown. An examination of old tomato plants revealed that the disease probably spread from them to the potatoes, as the young potato plants on which the disease first appeared were growing nearest to the blighted tomatoes. Freezes during February killed the tops of potato plants and blight did not reappear on the oldest potatoes until about the middle of March. However, it never became very severe, as the weather did not favor its development after a rainy period in mid-April.

Soft Rot. Many fields were flooded in mid-April during a 6-day period when the rainfall totaled 6 to 8 inches. In one locality where the soil remained water-logged for several successive days, soft rot

(Erwinia carotovora (Jones) S.A.B.) destroyed almost all of the tubers in fields totaling 500 acres. In one poorly-drained field, exposed parts of tubers remained sound, but parts that touched the soil rotted. In some fields the lower whorl of tubers was destroyed by soft rot and the upper whorl remained sound, depending upon the height reached by the water table and the time during which the soil remained water-logged in the tuber zone.

Corky Ringspot. This trouble did not appear in 1947 in crops grown in the same fields where it was found in 1946[1]. The disease has been reported as varying in intensity from year to year in certain fields in European countries[2]. Consequently, it is possible that weather and soil conditions at Hastings inhibited development of the disease in 1947. Furthermore, no symptoms of the corky ringspot appeared in tubers of 73 plants grown from seed tubers that were affected with the disease.

Internal Necrosis. In 1947 many tubers from fields in which the soil became water-logged during the April rainy period were affected with this trouble. It is possible that plants growing in water-logged soil were unable to provide nutrients needed for survival of tissues in the growing tubers and thus caused them to die and turn brown.

FLORIDA AGRICULTURAL EXPERIMENT STATION
POTATO INVESTIGATIONS LABORATORY, HASTINGS

SHORT REPORTS ON DISEASES OF POTATO

RHIZOCTONIA AND COMMON SCAB ON CHIPPEWA POTATOES IN MUCK

By A. H. Eddins and A. A. Foster

Fields of Sebago and Chippewa potatoes growing in muck at Zellwood, Florida were inspected when they were being dug on June 18. Approximately 10 acres of Chippewa had been ruined by rhizoctonia and common scab. Underground stems of the plants were covered almost completely with lesions caused by Rhizoctonia solani Kuehn, and most of the tubers were set close to the browned stems on short stolons that also were spotted by the disease. The tubers were numerous and under marketable

---

[1]Eddins, A. H., E. Q. Proctor, and Erdman West. Corky ringspot of potatoes in Florida. Amer. Potato Jour. 23: 330-333. 1946

[2]Atanasoff, D. Sprain or internal brown spot of potatoes. Phytopath. 16: 711-722. 1926

sizes, and few were free from scab. Sebago plants growing in rows adjoining the Chippewa were almost entirely free of rhizoctonia, and six or more, clean, U.S. No. 1 tubers were found under each hill examined.

Little is known about the relative susceptibility of Chippewa and Sebago potatoes to rhizoctonia and common scab. Observations recorded here do not prove that Sebago is more resistant than Chippewa to the two diseases. The Chippewa variety had been planted two weeks later than the Sebago, and it is possible that weather and soil conditions most conducive to development of rhizoctonia and common scab coincided with the most susceptible growth stages of Chippewa plants but not with similar stages in the growth of Sebago plants.

FLORIDA AGRICULTURAL EXPERIMENT STATION, POTATO INVESTIGATIONS LABORATORY, HASTINGS

PYTHIUM LESIONS ON POTATO SEED PIECES IN MAINE

By Donald Folsom

The Pythium internal soft rot of tubers is usually found in the autumn in southern Maine, in experimental stocks of potatoes that have been hand-dug with forks, with wounds resulting, and stored for several weeks in an open shed. However, no Pythium rot of seed pieces has been observed in Maine before 1947. In fact, seed pieces cut in the field at planting time usually heal rapidly and remain sound in the many acres planted each year by tuber units.

One grower in central Maine, after planting a field of the Houma variety on April 25, dug up some of the seed pieces in early May, when the weather had remained wet and cold, and found lesions on every seed piece dug. I found that no suberization had occurred yet, and I readily isolated Pythium from the lesions. With an improvement in the weather, suberization occurred and the rot was stopped, so that the field showed no effect in the way of missing or retarded hills as the season progressed, up to the date of writing.

Large losses from Pythium rot of seed pieces in British Columbia have been reported (Sci. Agr. 27: 72-73. 1947).

MAINE AGRICULTURAL EXPERIMENT STATION, ORONO. Aug. 28

REACTION TO RUST, UNDER MISSISSIPPI CONDITIONS, OF CERTAIN LINES AND VARIETIES OF POLE SNAP BEANS[1]

H. H. Foster

Pole snap beans are one of the oldest and most popular of garden vegetables grown in the South today. In several Southern States, pole snap beans are raised commercially for canning and/or the fresh market. A number of commercial varieties are available but the majority of these, including the old favorite Kentucky Wonder, are susceptible to rust.

Bean rust is caused by the fungus parasite Uromyces appendiculatus [U. phaseoli var. typica], one of the more common organisms attacking beans. When weather conditions are conducive to rust development (moist and cool) this disease may become serious. Rust may atack all parts of the plant above ground, but foliage infection is the most common symptom. When the disease reaches epidemic proportions, the more susceptible varieties frequently show rust pustules on petioles, stems, and pods.

This report deals with observations on experiments conducted at the Mississippi Truck Crops Branch Experiment Station during the two fall seasons of 1945 and 1946. During this period a total of 42 varieties and lines of beans were tested. Thirteen lines were observed during only a single season.

Tests were conducted during the fall season when temperatures and heavy dews frequently favor rust development. Seed were sown during August, and the plantings were irrigated when necessary. Data were taken during October and November. Rust developed from natural infection during both seasons. In 1946, owing to relatively abundant rainfall, rust development reached epidemic proportions, inducing pod infection on the more susceptible varieties.

Notes pertaining to foliage infection and pod type were taken both years. In 1946 notes relating to leaf drop and pod infection were also taken. An average disease rating was based on infection during the two-year period. Results are summarized in Table 1.

Seed of most lines used in these experiments were originally furnished through the courtesy of Dr. S. A. Wingard of the Virginia Agricultural Experiment Station and Dr. W. J. Zaumeyer of the U. S. Department of

---

[1]Contribution from Mississippi Truck Crops Branch Experiment Station, Crystal Springs, Mississippi. Published with the approval of the Director, Mississippi Agricultural Experiment Station. Paper No. 152, New Series

Table 1. Pole (snap) bean reaction to rust, Crystal Springs, Mississippi, fall of 1945 and 1946*.

Variety or number	Foliage infection 1945	Foliage infection 1946	Leaf drop 1946	Pod infection 1946	Average rating[c] 1945 and 1946	General remarks
Va. Victory No. 1	sl	sl-m	tr	0	1-2	Pods medium to long, rather flat
Va. Victory No. 2	sl	sl	0	0	1	More tolerant to rust than No.1 pods, medium to long, and semi-flat
Va. Victory No. 4	tr-sl	tr-sl	0	0	1	Pods medium to long and semi-flat
Va. Victory No. 5	m	m	0-tr	0	2	Pods short and medium in length, semi-round and showing some purple color
Va. Victory No. 6[a]	sl	--	--	--	1	Pods medium to long, very flat
Va. Victory No. 7	sl	m	0-tr	0	2	Pods short to medium in length, semi-round
Va. Victory No. 8	m	m-s	tr	0	2-3	Pods extra long and flat
Va. 102	tr	m-s	tr-sl	0	2-3	Pods short to medium in length, semi-round
Va. 103	sl	sl-m	0-tr	0	1-2	Pods are medium to long and semi-flat
Va. 104	tr-sl	sl-m	0	0	1-2	Pods are medium in length and rather flat
Va. 105	sl-m	sl-m	0-tr	0	2	Pods medium to long, semi-flat
Va. 106	m	sl-m	0	0	1-2	Pods medium to long, rather flat
Va. 107	tr	m	tr	0	1-2	Abundant infection on lower leaves in 1946, pods long and flat

Variety or number	Foliage infection 1945	Foliage infection 1946	Leaf drop 1946	Pod infection 1946	Average rating[c] 1945 and 1946	General remarks
Va. 108	sl-m	m-s	sl	tr-sl	2-3	Pods are short to medium, semi-round
Va. 109	tr	m	0	0	1-1.5	Abundant infection on lower leaves 1946. Pods are medium to long, rather flat
Va. 110	tr	sl-m	0	0	1	Slight to moderate infection on lower leaves 1946 Pods are medium to short, semi-flat
Va. 111	m-s	m	tr-sl	0	2-3	Pods medium to long and flat
Va. 112	sl	m	tr	0	2	Pods short to medium and flat
Va. 113	tr-sl	sl-m	0	0	1	Pods short and rather flat
Va. 114	tr	sl-m	tr-sl	0	1-2	Pods medium to long, rather flat
Va. 118	m	sl-m	tr	0	1-2	Pods short to medium, semi-round
Va. 119[a]	0	--	--	--	0	Pods medium in length, nearly round
Va. 120	sl	sl-m	tr	0	1-2	Pods medium to long, semi-flat
Va. 121	0	tr-sl	0	0	0-1	Pods short to medium, semi-flat
Va. 122	tr	sl-m	0-tr	0	1	Pods medium in length, semi-round
Va. 123	m	m	sl	0	2	Pods medium in length, semi-round

Variety or number	Foliage infection 1945	Foliage infection 1946	Leaf drop 1946	Pod infection 1946	Average rating[c] 1945 and 1946	General remarks
Va. 125	m	m-s	sl-m	0	2-3	Pods short to medium and semi-flat
Va. 126[a]	sl-m	--	--	--	2	Pods short to medium, semi-flat
Va. 127	s	m-s	sl-m	0	3	Most susceptible line in 1945 test. Pods medium in length, rather flat
Alabama No. 19	tr-sl	tr-sl	0	0	1	Pods short to medium and semi-round
U. S. 814	sl	sl-m	tr-sl	tr-sl	2-3	Pods medium to long, nearly round good appearance, early
Kentucky Wonder (rust susceptible)	m-s	s-v.s.	m-s	m	4	Plants defoliated by mid-season 1946. Pods long and flat, prolific
U. S. No. 3[b]	--	s	m	sl	3-4	Pods medium length, semi-flat, very early
No. 643[b]	--	sl-m	tr	0	2	Pods short and flat
No. 780[b]	--	0	0	0	0	Pods short to medium and flat
Creaseback[b]	--	m	sl	tr-sl	2-3	Pods medium in length, nearly round
White Creaseback[b]	--	s	sl-m	sl	3-4	Pods medium in length, semi-round
Ideal Market[b]	--	v.s.	m	m	4	Pods medium to short, round
Tenn. Wonder[b]	--	s	sl-m	tr-sl	3-4	Pods long and rather flat
Potomac[b]	--	m-s	tr-sl	tr-sl	3	Pods medium long, semi-round
Stringless Blue Lake[b]	--	m-s	sl-m	sl	3-4	Pods medium to long, round, excellent quality

Variety or number	Foliage infection 1945	Foliage infection 1946	Leaf drop 1946	Pod infection 1946	Average rating[c] 1945 and 1946	General remarks
Decatur[b]	--	m-s	tr-sl	tr-sl	3	Pods short to medium, round, good quality

[a] Lines included in 1945 test only
[b] Lines included in 1946 test only
[c] Key to average rating:
0 = No definite macroscopic symptoms on foliage or pods
1 = Very slight infection on lower leaves; only occasional trace on upper leaves; no pod infection
2 = Moderate to severe infection on lower leaves; only slight (mostly scattered) rust infection on upper leaves; only trace to slight leaf drop due to rust infection; no pod infection
3 = Abundant infection on lower leaves; slight to moderate (general) infection on upper leaves; slight leaf drop due to rust infection; usually occasional pods observed with slight infection
4 = Severe foliage infection covering both lower and upper leaves; moderate leaf drop due to rust infection; few to many pods observed showing rust pustules; some rust pustules coalescing

*Key to abbreviations is as follows:
tr = trace
sl = slight
m = moderate
s = severe
v.s. = very severe

Agriculture. Seed of certain commercial varieties were furnished through the courtesy of Associated Seed Growers, Inc.

In 1945, based on foliage reaction, only one line, Virginia 119, remained free from infection. Unfortunately, seed of this line was not available for the 1946 fall test. In 1946, No. 780 was the only line remaining free from infection. However, during the two seasons 19 lines appeared resistant, receiving an average disease rating not exceeding 1-2, as shown in Table 1.

None of the commercial varieties tested were highly resistant. Kentucky Wonder and Ideal Market were extremely susceptible, dropping most of their leaves early in the season and showing numerous pods with one or more large rust pustules.

Certain commercial varieties tested, though not highly resistant, tended to be less susceptible than Kentucky Wonder. These varieties retained their foliage longer and maintained sufficient vigor to produce well and over a longer period. Both Stringless Blue Lake and Decatur produced a round, good quality bean apparently satisfactory for both canning and the fresh market.

No determination was made of the physiologic races of bean rust present in the planting. However, it seems probable that several races may have been present. U.S. No. 3 has been reported to be resistant to one or more races of rust but in this trial it appeared only slightly to moderately resistant, with a disease rating of 2.

Bean rust reduces the yield and frequently the quality of home garden pole snap beans. There is a definite need, under Mississippi conditions, for a rust-resistant pole bean combined with high commercial quality.

MISSISSIPPI AGRICULTURAL EXPERIMENT STATION
STATE COLLEGE

AN UNUSUALLY HEAVY INFECTION OF YELLOW BEAN MOSAIC DESTROYS THE CACHE VALLEY BEAN CROP

H. Loran Blood

All but 75 of 240 acres of Blue Lake pole beans planted for canning in the Cache Valley of Northern Utah have been abandoned because of an unusually heavy infection of both common bean mosaic (green type) and yellow bean mosaic. The common bean mosaic is distributed about equally throughout all the fields while the yellow bean mosaic, which is by far the more destructive of the two diseases, is most prevalent around the borders and lessens in severity towards the middle of the fields. Most of the small fields are almost completely destroyed while the large fields show areas in the middle that still remain productive.

The pods from infected plants are small, stringy, and poor in color. In general, pods from infected plants are very poor in quality and are not wanted by the cannery.

Circumstantial evidence points to the sweetclover, one of the hosts of the yellow type of mosaic, as the principal source of the infection. Sweetclover is abundant along fence lines, roadsides, and ditch banks in the Cache Valley. The disease is most severe in fields near waste areas overgrown with this host. Whether there are other wild hosts of the virus growing in the waste areas is not known. One small garden plot of pole beans growing near a few rows of gladiolus was completely destroyed. There was no sweetclover sufficiently close to this spot to account for such unusual and complete destruction.

The aphid population was very large in bean fields throughout the Valley during the early summer period. This probably accounts for the extensive and rapid distribution of the viruses in the bean fields. Both of these diseases are present in bean fields every year, but they reach such destructive proportions only in years when the aphid population is sufficiently large to distribute the viruses through the fields.

UNITED STATES DEPARTMENT OF AGRICULTURE
UTAH AGRICULTURAL EXPERIMENT STATION
LOGAN

THE OCCURRENCE OF MELON MOSAIC IN SOUTHERN CALIFORNIA

John T. Middleton

In the Plant Disease Reporter (30 (10): 373-375, Oct. 15, 1946) a report was given on the occurrence of the cantaloup mosaic virus on cantaloups and honeydew melons in southern California. Since that report was made it has been estimated that about a two and a half million dollar crop loss was incurred in the 1946 melon harvest. The 1947 melon plantings were found to be generally infected with the virus: infection varied in cantaloups from 53 to 100 percent, whereas in honeydews it varied from 84 to 100 percent. A survey was made of the melon-growing areas of Yuma, Arizona, and of the Palo Verde Valley adjacent to the Colorado River, near the town of Blythe, California. The virus infection in Yuma was very similar to that observed in the Imperial Valley of California, although there may have been somewhat less fruit loss due apparently to a later date of infection. In the Palo Verde Valley heavy losses were incurred, some on cantaloups but primarily on honeydews. Plantations adjacent to irrigation and drainage systems overgrown with vegetation were more severely infected than fields adjacent to waterways relatively free from natural plant growth.

Losses incurred as a result of infection by the cantaloup mosaic virus are manifest in the setting of fewer melons, the production of more off-shape melons, and a high percentage of sunburned fruit due to the sparsity of foliage. Melons set on virus-infected plants may or may not show mottling beneath the netting in cantaloups, but in honeydews a conspicuous, dark-green mottle is present on the normal light-green background. Normal-appearing cantaloups and honeydews harvested from mosaic-infected vines have less total soluble solids than fruits from healthy vines.

Investigation of the disease has shown that both the pea aphid, Illinoia pisi, and the melon aphid, Aphis gossypii, are efficient vectors. Both the striped and spotted cucumber beetles, Diabrotica trivittata and D. duodecimpunctata, are also vectors but are less efficient than the aphids.

In the early spring, usually in the latter part of March and early April, winged forms of the aphids named are prevalent in large numbers. It has been established that some of these are viruliferous upon entry into melon plantings. Inasmuch as the virus may be seed-borne, non-viruliferous aphids entering the field may readily acquire the virus through feeding on infected plants, resulting from a planting of infected seed; subsequent spread of the disease results from vector movement.

A number of common weeds have been found to harbor the cantaloup mosaic virus. Among those weeds found to be naturally infected are lamb's-quarter (Chenopodium spp.), pigweed (Amaranthus spp.), and two wild

gourds, Cucurbita foetidissima and C. palmata. The two gourds are native to the Colorado desert and the Imperial Valley. The virus is seed-transmitted in C. palmata.

Control of the disease presumably rests upon the planting of virus-free seed and elimination of vectors and of host reservoirs of the virus. With the present shortage of efficient aphicides, it is of interest to note that plantings of sulfur-resistant cantaloups that have been sulfured regularly once the runners have formed have remained comparatively free from mosaic, whereas sulfur-resistant cantaloups that have not been sulfur dusted were severely infected.

Likewise, honeydews that have been sulfured regularly, but primarily for the control of powdery mildew, show less mosaic than honeydews that have not been sulfured. It is assumed that the freedom from mosaic is due to the action of sulfur upon the migrating aphid vectors.

As a consequence of these field observations it is felt that some relief may be secured from the effects of the virus if sulfur-resistant melon varieties are grown and given frequent sulfur applications for the control of aphids, which introduce and spread this virus disease.

CALIFORNIA AGRICULTURAL EXPERIMENT STATION
CITRUS EXPERIMENT STATION, RIVERSIDE

ANOTHER BAD YEAR FOR ONION MILDEW IN LOUISIANA

E. C. Tims

Onion downy mildew (Peronospora destructor) occurred in widespread and destructive form in southern Louisiana during the spring of 1947. The disease caused more severe damage over a wider area than in any previous season for many years. Mildew often causes serious losses on onions grown for bulbs in the lower Bayou LaFourche area (PDR 25: 295-296; 27: 281-282; 30: 334-335), and occasionally in other sections of the State, but this season the damage was widespread over practically the entire onion-growing area.

Losses were not so heavy this year in bulb onions as in those grown for seed. Most of the important seed growers suffered heavy losses. There were comparatively few seed of the Creole variety saved. Since this variety makes up the bulk of the onions grown in the State, the loss from mildew was rather serious. One planting of stock seed of a selected strain of Creole was completely wiped out on the Experiment Station grounds at Baton Rouge.

Shallots were affected with mildew again this year, but infection was

not nearly so widespread or destructive as in the spring of 1946[1]. Some shallot progenies in the breeding plots at Baton Rouge were severely affected. All the seed stalks in one plot were killed, and the tops of most of the plants were badly burned. Many of the seedling progenies were lost because they were killed back before sets were formed.

LOUISIANA AGRICULTURAL EXPERIMENT STATION
BATON ROUGE

FRUIT AND VEGETABLE LOSSES ON THE CHICAGO MARKET AS INDICATED BY DUMPING CERTIFICATES

G. B. Ramsey, M. A. Smith, and Barbara C. Heiberg

In addition to the authority granted the U. S. Department of Agriculture to inspect, upon request of financially interested parties, fresh fruit and vegetable produce received in interstate commerce, an act was approved March 3, 1927, entitled "An act to prevent the destruction or dumping, without good and sufficient cause therefor, of farm produce received in interstate commerce by commission merchants and others and to require them truly and correctly to account for all farm produce received by them." This act provided for the issue of certificates as to quality and condition of such produce as is to be destroyed, abandoned, discarded as refuse, or dumped, upon application of financially interested parties. Dumping certificates are issued, however, only on lots of produce that on inspection are found to be of no commercial value.

It was thought that, as a matter of general interest, a review of the dumping certificates issued at the Chicago market might be worthwhile. A review of such certificates covering the years 1941 to 1946 inclusive has been made. While the following report shows some of the losses in major crops, it does not by any means show the total losses of fruits and vegetables on this market. As a matter of fact a large proportion of the dumping certificates issued are for lots of produce left in the hands of the receiver after the merchantable stock had been sold. Market demands greatly influence the sale of produce partially damaged by blemishes and decay, therefore it often happens that complete loss of some packages as shown by the dumping certificates represents only a fraction of the total loss sustained. Furthermore, shippers, transportation agencies, and receivers may by agreement settle their differences, thus making requests for dumping certificates unnecessary. A great proportion of the losses in such commodities as tomatoes, potatoes, melons, lettuce, celery, and others, are not shown by dumping certificates.

---

[1] Tims, E. C. Some shallot diseases in Louisiana. Plant Dis. Reptr. 30: 335-338. 1946

Table 1. Number of pounds of produce for which dumping certificates were issued in Chicago, 1941 to 1946

Commodity	Pounds of produce						Cause of loss
	1941	1942	1943	1944	1945	1946	
Apples	0	3,984	0	0	0	3,692	Penicillium and internal breakdown
Avocados	0	0	0	0	4,530	1,230	Colletotrichum and Rhizopus rot
Beans	0	17,100	25,200	35,550	12,000	23,440	Sclerotinia and Phytomonas
Broccoli	0	0	2,430	14,850	13,300	5,850	Erwinia carotovora and Botrytis
Brussels sprouts	0	0	0	197	1,312	0	E. carotovora
Cabbage	0	0	0	63,200	25,000	13,250	E. carotovora
Cantaloups	0	0	0	0	0	7,080	Rhizopus rot
Carrots	0	0	79,740	20,000	0	11,150	E. carotovora and Sclerotinia
Celery	0	10,440	4,080	660	3,900	142,860	E. carotovora and Sclerotinia
Collards	0	0	7,025	1,100	0	750	E. carotovora
Cucumbers	43,800	0	0	23,850	0	1,200	Pythium and E. carotovora
Eggplant	0	0	8,900	34,950	14,350	4,450	Phomopsis fruit rot
Endive	34,470	2,200	0	8,480	1,920	0	E. carotovora and Sclerotinia
Escarole	0	0	0	0	0	16,140	E. carotovora and Sclerotinia
Grapefruit	0	0	0	0	0	5,920	Penicillium
Kale	0	0	0	0	0	2.125	E. carotovora
Lettuce	0	0	26,640	58,605	60,840	37,320	E. carotovora
Limes	0	0	0	0	1,066	0	Penicillium
Mustard greens	0	0	0	9,360	0	19,650	E. carotovora
Parsley	0	6,550	26,375	1,650	0	10,980	E. carotovora and Sclerotinia
Peaches	0	2,496	0	0	19,776	0	Rhizopus rot and Monilinia
Peas	12,720	0	2,100	6,060	7,050	0	E. carotovora and Sclerotinia
Pineapples	0	0	0	0	530	0	Thielaviopsis
Plums	0	0	0	0	57,288	0	Monilinia and SO_2 injury

Commodity	Pounds of produce						Cause of loss
	1941	1942	1943	1944	1945	1946	
Potatoes	33,900	0	30,000	74,200	75,000	45,000	E. carotovora
Radishes	12,825	2,250	17,025	61,875	49,773	56,700	E. carotovora in tops
Rhubarb	4,280	0	0	1,020	0	3,600	Botrytis and E. carotovora
Shallots	0	0	0	0	5,640	0	E. carotovora
Spinach	21,340	11,700	19,580	108,800	18,320	49,260	E. carotovora
Squash	0	0	0	0	1,085	0	Mycosphaerella and E. carotovora
Sweetpotatoes	0	0	15,600	0	0	0	Rhizopus rot
Tomatoes	34,770	0	0	15,110	13,140	11,610	E. carotovora, Alternaria, Rhizopus, and Cladosporium
Turnips	0	0	8,450	42,900	73,650	16,350	E. carotovora, Botrytis, and Sclerotinia
Watermelons	0	0	0	1,290	0	0	Diplodia

Table 1 lists the commodities and the amount of loss shown by dumping certificates issued at Chicago by the Production and Marketing Administration for the years 1941 to 1946. As stated previously, this table does not show the total losses but merely indicates the types of produce showing complete loss (packages or lots of no commercial value) in moderate amounts while still in the hands of the receiver or jobber. However, in the types of produce showing greatest loss (Table 1), dumping certificates are occasionally issued for whole carloads. Usually in such instances the cars of produce have been abandoned to the railroad.

Oftentimes several diseases occur in lots of produce on which dumping certificates are requested. Only the most important pathogens responsible for the loss are mentioned in the table. Bacterial soft rot, in general, caused greater losses than any other disease. This, of course, is particularly true of the vegetables, which are always contaminated by bacteria from the soil and water and are injured more or less during harvesting. In transit under good refrigeration bacterial soft rot develops little, but when vegetables are not well refrigerated or are unloaded and become warm for a day or two the unsold produce is certain to develop bacterial soft rot. The other chief decay is watery soft rot (Sclerotinia) which often develops extensively in the fields, in transit, and on the market in produce harvested under wet conditions. This organism induces decay under good refrigeration temperatures as well as at higher temperatures. Since the pathogen is not dependent upon wounds for infection it spreads rapidly by contact, producing nests of decay and ultimate destruction of complete packages of produce. In some commodities it will be noted, however, that the more specific diseases, such as avocado anthracnose, Phomopsis rot of eggplant, brown rot of peaches, etc., are the most important causes of loss. Such important diseases as late blight of potatoes and tomatoes, fusarium bulb rot and gray mold rot of onions, bullseye rot and scald of apples, are usually not mentioned in dumping certificates. Although these diseases are often serious in carload lots whole packages of produce are rarely a complete loss and a dumping certificate cannot be issued. Such commodities are reconditioned or sold "as is" and adjustments are made between the interested parties. Claims for extensive losses of produce subjected to severe damage by freezing, heating, or fumigation are usually adjusted by the interested parties involved and they do not ask for a dumping certificate.

U. S. BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING
MARKET PATHOLOGY LABORATORY, CHICAGO

GRAPE DOWNY MILDEW IN ILLINOIS IN 1947

G. H. Boewe

Downy mildew, Plasmopara viticola (Berk. & Curt.) Berl. & deT., is much more prevalent on grapes in Illinois in 1947 than it is in an average year. It was found in most grape plantings examined in the west-central part of the State during a survey made from August 12 to 15. The disease is probably statewide in its distribution on cultivated grapes, as it was found on August 20 at Metropolis in Massac County in the extreme southern part of the State.

The severity of downy mildew attack varied with the varieties, type of treatment, and location of the vineyard. Prevalence was very light on the Concord variety in the Nauvoo area (Hancock County, western Illinois), regardless of whether the plants were sprayed with Bordeaux or not. In an apparently favorable location at Niota (about 12 miles northeast of Nauvoo) downy mildew was quite prevalent in a 17-acre planting of Concord grapes, although they had had 3 applications of Fermate, 2 of which were post-bloom sprays. One unsprayed three-acre planting in Putnam County near LaSalle (northern Illinois) was very severely diseased; some leaves were almost completely covered by the sporulating fungus and partially dried up.

In southern Illinois no mildew was observed on unsprayed Concord grapes at Metropolis, but 29 percent of the leaves of the white and pink grapes were infected lightly. In Pulaski County a vineyard of Concord, Fredonia, Cottage, and a white grape, which had received 3 applications of Bordeaux was free of downy mildew. Near Centralia, a vineyard which probably had been sprayed with Fermate at the time cherries were sprayed had a very light infection of mildew on two plants of a white variety. In general, downy mildew is much more severe on grapes in the central part than in the southern third of Illinois.

Downy mildew has been very prevalent on wild grapes in central and northern Illinois this year. Almost every group of plants examined in this area during July was infected with downy mildew.

The weather seems to have been favorable for the development of grape downy mildew in 1947. May and June were cold and June was wet. The mean temperature of May was 59.4°F. and that of June was 69.7°F., which is 3.3° and 2.4° respectively below normal. May had 4.32 inches of rainfall or 0.16 inches above normal, while June had 6.31 inches or 2.29 inches above normal. Heavy dews occurred during much of July.

ILLINOIS STATE NATURAL HISTORY SURVEY
URBANA

BITTER ROT ON SOUR CHERRY

Carlton F. Taylor and Clyde E. Peet

Near the completion of the sour cherry harvest in Jefferson County, West Virginia, in 1947, a cherry fruit rot of unusual appearance was brought to the attention of the writers. On certain trees a considerable number of the fruits were affected and on some large branches almost all of the fruits were rotted. The stage of development of the rot varied from fruits that had decayed and almost completely dried to fruits with spots so small as to be barely detectable. The tendency of the recently infected fruits to be grouped around or beneath fruits with older lesions was striking. Examination of other orchards in which harvest had not been completed revealed the presence of this rot in appreciable amounts in one other orchard. A few similarly infected fruits were found in all orchards visited but the amounts were negligible in most.

Both orchards in which high incidence of the disease was found were close-planted on low ground and had poor air drainage. Within these orchards the rot was more abundant where the poorest air drainage existed. On higher ground and on smaller trees very little of the disease occurred.

Counts based on the total crop from several trees selected as being heavily affected in the orchard where the disease was first found averaged from 11 to 15 percent, by numbers, of the fruits infected. It is believed that a higher percentage of the fruits were infected on some trees harvested before these counts could be made. The total tonnage loss was not great in either orchard. However, the rigid sorting necessitated by the presence of this rot greatly increased the labor of harvest.

Starting as a small tan-colored scalded spot not unlike the first symptoms of brown rot, the rot progressed and developed concentric folds until it reached the greatest diameter of the fruit. At this point the advance usually ceased and the rotted areas became dry and hardened. Hyaline Gloeosporium-like conidia were produced in abundance in acervuli on the affected area.

Tissue culture isolations from affected cherries yielded a fungus resembling Glomerella cingulata as obtained from bitter rot lesions on apples.

Cross inoculations were attempted on July 15 by suspending rotted cherries in cheesecloth bags a few inches above the fruit on Grimes Golden apple trees. Lesions typical of apple bitter rot developed on these apples around August 15. Multiple infections occurred on most fruits, indicating the presence of abundant inoculum. No bitter rot

had developed at this time on fruits not immediately beneath suspended rotted cherries, or suspended cherry branches on which the crop had been infected. Since the senior writer had examined the crop from these apple trees each season since 1938 without finding bitter rot previously, this relation between cherry-source inoculum and the apple fruit infections is regarded as good evidence of pathogenicity. Isolations from these rotted apples yielded an organism similar to that obtained from the cherries and apparently the same as that obtained from apples on which bitter rot had developed normally in other apple orchards.

Additional inoculations were made August 18 by suspending dried, affected cherries in bags above the fruit and also by suspending an uncovered culture of the cherry fungus in the bottom half of a Petri dish above the fruit in a Grimes Golden tree. On September 2 minute lesions of bitter rot were developing on the fruit both beneath the cherry fruits and beneath the Petri dish culture.

The weather preceding and during cherry harvest was unusually wet. In the orchard where this disease was first found harvest was commenced on July 2 and completed July 19. During this period precipitation was recorded on 12 days and totaled 3.38 inches. From June 2 to July 2 rain to a total of 4.69 inches was recorded on 12 days well scattered over the month. Maximum temperatures during the 17 days of the harvest period averaged 82.3°F. while the minimum temperatures averaged 61°F. The daily minimum humidity during this period averaged 61 percent.

The senior author believes that this disease has been present in previous seasons but in such small amounts as to receive scant attention. It is our belief that the cherry rot observed this season was caused by Glomerella cingulata and that it reached epiphytotic proportions under the favoring influence of frequent rainfall, warm weather and high humidity in the unusually wet harvest season of 1947. No data were obtained on the control of this disease other than the fact that fixed coppers at 3/4 pound of metallic copper per 100 gallons obviously did not offer adequate protection.

While a few texts and popular bulletins state that bitter rot occurs on sour cherry as well as on a variety of other hosts, a hasty check of the literature reveals no specific record of such occurrence. According to a letter from Dr. Freeman Weiss, Division of Mycology and Disease Survey, U.S.D.A., the only prior record in the United States known to him is in a mycological collection made in Indiana in 1915. Herbarium material of the Indiana collection is filed at Beltsville.

DEPARTMENT OF PLANT PATHOLOGY AND BACTERIOLOGY
WEST VIRGINIA UNIVERSITY
MORGANTOWN

INCIDENCE OF DISEASES IN RHODE ISLAND NURSERIES IN 1947

Sylvan I. Cohen

This list of diseases was prepared from a nursery disease survey of 68 licensed nurseries, conducted cooperatively by the Rhode Island Agricultural Experiment Station and the State Department of Agriculture. Tabulation of these observations and collections indicates that 117 diseases were present attacking 65 species of nursery stock. All of these diseases reported are of general occurrence throughout the United States, and none was present in epiphytotic proportions.

Host	Disease	Causal agent
Alder	Leaf spot	Sphaeropsis sp. (1)*
Andromeda	Leaf spot	Asterina sp. (1)
Apple	Black rot	Physalospora obtusa (22)
	Scab	Venturia inaequalis (30)
	Rust	Gymnosporangium juniperi-virginianae (3)
	Powdery mildew	Podosphaera leucotricha (1)
Apricot	Leaf spot	Fungus undetermined (1)
Arborvitae	Blight	Phomopsis juniperovora (19)
	Blight	Pestalotia funerea (4)
Ash	Leaf spot	Phyllosticta sp. (1)
Aster	Powdery mildew	Erysiphe cichoracearum (1)
Azalea	Leaf spot	Spray injury ? (1)
Blueberry	Leaf spot	Cause undetermined (1)
	Rust	Pucciniastrum myrtilli (1)
Boxwood	Leaf spot and dieback	Macrophoma candollei (8)
	Leaf spot	Phyllosticta sp. (1)
Cedar	Blight	Pestalotia funerea (2)
	Blight	Phomopsis juniperovora (1)
Cherry	Leaf spot	Coccomyces hiemalis (7)
		Phyllosticta sp. (1)
	Brown rot	Monilinia fructicola (1)
	Dieback	Cause undetermined (1)
	Black knot	Dibotryon morbosum (1)
Chestnut	Blight	Endothia parasitica (2)
Chrysanthemum	Leaf spot	Cylindrosporium chrysanthemi (2)
Coralberry (Symphoricarpos)	Leaf spot	Glomerella sp. (1)
Cryptomeria	Blight	Pestalotia funerea (4)
		Phomopsis juniperovora (1)
Currant	Leaf spot	Cause undetermined (1)

*Figure in parenthesis represents the number of times the disease was determined in nurseries or units thereof.

Host	Disease	Causal agent
Dogwood	Leaf spot	Septoria cornicola (6)
		Phyllosticta cornicola (1)
	Canker	Cause undetermined (1)
Elm	Leaf spot	Gnomonia ulmea (2)
English ivy (Hedera)		
	Leaf spot	Phyllosticta concentrica (1)
Fir	Needle cast	Hypodermella sp. ? (2)
Flowering crab	Scab	Venturia inaequalis (4)
	Rust	Gymnosporangium juniperi-virginianae (5)
	Black rot	Physalospora obtusa (3)
Forsythia	Leaf spot and blight	Fungus undetermined (1)
		Cladosporium sp. (1)
	Mosaic	Virus (1)
Ginkgo biloba	Leaf spot	Pestalotia sp. (1)
Gladiolus	Bulb rot	Cause undetermined (1)
Grape	Black rot	Guignardia bidwellii (7)
Hawthorn	Leaf spot	Entomosporium thuemenii (4)
	Rust	Gymnosporangium globosum (2)
Hemlock	Rust	Pucciniastrum myrtilli (4)
Holly (Ilex)	Leaf spot	Phyllosticta ilicicola (4)
		Cladosporium sp. (1)
Hollyhock	Rust	Puccinia malvacearum (3)
Honeysuckle	Leaf spot	Fungus undetermined (1)
		Phyllosticta sp. (1)
Horse chestnut	Leaf blotch	Guignardia aesculi (4)
Hydrangea	Leaf spot	Ascochyta hydrangeae (1)
Iris	Leaf spot	Didymellina macrospora (3)
Ivy	Leaf spot	Phyllosticta ilicicola (1)
Japanese red maple	Leaf spot	Phyllosticta minima (14)
Juniper	Blight	Phomopsis juniperovora (21)
Kalmia	Leaf spot	Mycosphaerella colorata (7) (Phyllosticta kalmicola)
		Cercospora kalmiae (9)
		Pestalotia kalmicola (1)
Laburnum	Leaf spot	Phyllosticta cytisii (2)
	Leaf spot	Spray injury ? (1)
Larch	Leaf cast	Cause undetermined (1)
Leucothoë	Leaf spot and dieback	Mycosphaerella sp. (4)
		Pestalotia sp. (1)
Lilac	Blight	Botrytis syringae (12)
	Powdery mildew	Microsphaera alni (3)
	Leaf spot and blight	Cladosporium sp. (5)
		Alternaria sp. (1)
Magnolia	Leaf spot	Phyllosticta cookei ? (1)
Maple	Leaf spot	Phyllosticta minima (25)
	Winter sunscald canker	Freezing injury (2)

Host	Disease	Causal agent
(Maple)	Canker	Nectria sp. (ditissima ?) (1)
	Wilt	Verticillium sp. (1)
Mountain ash	Leaf spot	Sphaeropsis sp. (3)
	Stem canker	Valsa sordida (1) (Cytospora chrysosperma)
Oak	Leaf blister	Taphrina coerulescens (1)
	Leaf spot	Phyllosticta sp. (1)
	Powdery mildew	Oidium sp. (1)
Peach	Leaf and fruit spot	Bacterium pruni (1) [Xanthomonas]
	Shot-hole	Cause undetermined (1)
	Brown rot	Monilinia fructicola (2)
Pear	Scab	Venturia pirina (1)
	Fireblight	Bacillus amylovorus [Erwinia amylovora] (1)
	Leaf spot	Cylindrosporium [Mycosphaerella] pomi (2)
Peony	Blight	Botrytis paeoniae (13)
Phlox	Leaf spot	Septoria divaricata (4)
	Powdery mildew	Erysiphe cichoracearum (2)
Pine	Rust	Cronartium ribicola (1)
	Needle cast	Hypoderma sp. (1)
		Fungus undetermined (1)
	Needle rust	Coleosporium sp. (1)
Plum	Brown rot	Monilinia fructicola (2)
Poplar	Leaf spot	Marssonina populi (2)
Quince	Leaf spot	Cause undetermined (1)
Rhododendron	Leaf spot	Botryosphaeria ribis (1)
		Septoria sp. (1)
		Cause undetermined (3)
		Phyllosticta sp. (9)
	Leaf blight	Pestalotia macrotricha (8)
	Wilt	Phytophthora cactorum (1)
Rose	Black spot	Diplocarpon rosae (13)
	Anthracnose	Sphaceloma rosarum (9)
	Powdery mildew	Sphaerotheca pannosa (1)
	Rust	Phragmidium sp. (1)
Spirea	Leaf spot	Alternaria sp. (1)
Spruce	Leaf cast	Lophodermium filiforme (1)
Strawberry	Leaf spot	Mycosphaerella fragariae (4)
Styrax	Leaf spot	Cause undetermined (1)
Taxus	Needle blight	Pestalotia sp. (2)
		Undetermined fungus (2)
		Phomopsis sp. ? (1)
Viburnum	Leaf spot	Fungus undetermined (4)
Virginia creeper	Black rot	Guignardia bidwellii (2)
Willow	Twig canker and leaf spot	Physalospora miyabeana (2) (Gloeosporium stage)
Yucca	Leaf spot	Phyllosticta sp. ? (2)

RHODE ISLAND STATE COLLEGE, KINGSTON

NEW RECORDS OF PLANT DISEASES

CEREAL DISEASES NEWLY RECORDED IN WEST VIRGINIA

By H. L. Barnett

Following is a brief report of two diseases believed to have been found for the first time in West Virginia.

Helminthosporium Disease of Oats (Helminthosporium victoriae): This disease was very likely present in the fields of Vicland oats last year but was not definitely identified until its development at the University Agronomy Farm at Morgantown this season. A limited survey in the vicinity of Morgantown showed that the disease was severe in most fields of Vicland. Two fields of Vicland in Preston County were reported free from the disease. The loss is estimated to range up to 50 percent.

Rhynchosporium Scald of Barley (Rhynchosporium secalis): Light infections of this disease were found on some varieties in the barley variety trial plots at the University Agronomy Farm at Morgantown. I find no previous report on barley from this State.

WEST VIRGINIA UNIVERSITY, MORGANTOWN

NEMATOSPORA PHASEOLI ON LIMA BEANS IN LOUISIANA

By W. E. Cooper

Lima beans collected by the grower in a local garden were found to be infected with Nematospora phaseoli Wingard. The symptoms produced and the characteristics of the organism are identical with Wingard's description (Phytopath. 12: 525-532, 1922). The infection was associated with insect injury. The organism grew and produced asci on Czapek's agar plus 0.1 percent yeast extract.

This constitutes the first report of this disease in Louisiana, although no previous search had been made for it.

LOUISIANA STATE UNIVERSITY, BATON ROUGE

A CORRECTION

There is an error in the Plant Disease Reporter, Vol. 31, no. 9, p. 322, Sept. 15, 1947. The first sentence in the third paragraph should read "The spring of 1947 . . . " instead of "The spring of 1946 . . ." -- C. O. Johnston, Kansas Agricultural Experiment Station, Manhattan

CHECK LIST REVISION

Freeman Weiss

ANETHUM (UMBELLIFERAE)

ANETHUM GRAVEOLENS L., DILL. European annual or biennial, grown for savory seed; locally naturalized in the Northeast

Cercospora anethi Sacc., leaf and stem spot. N. Dak., Tex.
Cuscuta sp., dodder. Ga.
Heterodera marioni (Cornu) Goodey, root knot. ? Fla.
Phoma anethi (Pers. ex Fr.) Sacc., leaf and stem spot. Conn., Ind., Iowa
Phymatotrichum omnivorum (Shear) Dug., root rot. Tex.
Rhizoctonia solani Kuehn, damping off. Ga.
Sclerotinia sclerotiorum (Lib.) DBy., stem rot. Tex.

Yellows -- virus (Chlorogenus callistephi Holmes, Callistephus virus 1 K. M. Sm.). N. Y., Tex.

ANGELICA (UMBELLIFERAE)

ANGELICA spp., as A. ATROPURPUREA L., PURPLE-STEMMED ANGELICA (1), A. CURTISII Buckl. (2), A. LYALLII S.Wats. (3), other spp. (4). Perennial herbs of woodlands and meadows; (1) in the Northeastern and North Central States, (2) in the Middle Atlantic, (3) and others in the West and Northwest. Several spp. are of minor forage value or furnish food for wild life, some are grown in wild gardens, and the roots and seed of (1) and A. archangelica L. of Europe are used in pharmacy.

Cercospora apii Fres. var. angelicae Sacc. & Scalia, leaf spot. Alaska (4)
C. thaspii Ell. & Ev., leaf spot. Ala. (4)
Colletotrichum dematium (Fr.) Grove, on stems. N. Y. (1)
Fusicladium angelicae (Fr.) Lind (F. depressum (Berk. & Br.) Sacc.), leaf spot. General (1,2,3,4). This combination is antedated by F. angelicae Ell. & Ev. and should perhaps be written F. angelicae [Fr.] Ell. & Ev. Associated with and reputed to be the conidial stage of Phyllachora angelicae (Fr.) Fckl., to which Didymella angelicae (Ell. & Ev.) Sacc. and Mycosphaerella angelicae (Fckl.) Petr. have also been applied.
Gloeosporium angelicae Cke., leaf spot. S. Car. (4)
Heterosporium sp., on stems. Wyo. (4)
Leptostromella angelicae Dearn. & House, on stems. N. Y. (1)
Phoma complanata (Tode ex Fr.) Desm., on stems. Wyo. (4)
Phyllosticta angelicae Sacc., leaf spot. Calif., Wyo. (4). Associated with Fusicladium angelicae and Phyllachora angelicae

ANGELICA cont.

Piggotia depressa Dearn., leaf spot. Mont. (3). Associated with Fusicladium

Puccinia angelicae (Schum.) Fckl. (0, I, II, III), rust. N. Y. (1); Ore., Pa., Wash. (3,4)

P. bistortae (Strauss) DC. (0, I). Alaska (4)

P. coelopleuri Arth. (0, I, II, III), rust. Alaska (4)

P. ellisii DeT. (0, I, II, III), rust. Calif. (3,4); Ida., Nev., Ore., Wash. (4)

P. ligustici Ell. & Ev. (III), rust. Colo., Alaska (4)

P. poromera Holw. (III), rust. Utah (4)

Ramularia angelicae Hoehn., leaf spot. Colo., Alaska (4)

R. grantii Dearn. Wash. (4)

Septoria dearnessii Ell. & Ev., leaf spot. Wis. (1), N. Car. (2)

APIUM (UMBELLIFERAE)

APIUM GRAVEOLENS L. var. DULCE DC., CELERY (1) and var. RAPACEUM DC., CELERIAC (2). Biennial or perennial of Europe, grown widely in gardens for edible leafstalks (1) or root-crown (2); commercial cultivation chiefly in Calif., Fla., Mich., N. Y., Ohio, Pa., N. J., Colo.

Alternaria sp., leaf spot (? secondary). Fla. (1). A. tenuis Nees ex Cda. is reported on seed from U. S. sources

(Ansatospora macrospora (Osterwalder) Newhall): Centrospora acerina

Aphanomyces euteiches Drechs., damping off. Mass. (1)

Botrytis cinerea Pers. ex Fr., gray mold rot. Cosmopolitan in transit and markets; sometimes stem rot in fields, Calif., Mass., Wash., Alaska (1)

Centrospora acerina (Hartig) Newhall, storage rot. N. Y. (1)

Cercospora apii Fres., early blight. General (1); Conn., Ill., N. Y. (2)

Ditylenchus dipsaci (Kuehn) Filip., stem nematode. Calif. (1)

Erwinia carotovora (L.R.Jones) Holland, bacterial soft rot. Cosmopolitan in transit and markets.

Fusarium oxysporum Schlecht. f. apii (R.Nelson & Sherb.) Snyder & Hansen (F. orthoceras App. & Wr. var. apii (R.Nelson & Cochran) Wr. & Reinking), Fusarium yellows, wilt. General in the northern celery districts from Conn. and N.J. to Ind. and Minn., also Calif., Colo., Mo., Mont. (1). Fusarium spp. associated with root rot are reported from Calif., Colo., Fla., Mich., N. J., Ohio (1).

Heterodera marioni (Cornu) Goodey, root knot. Southern States from Va. to Fla. and Calif.; occasional in the North, as N. J. to Ind., Kans., and Mich.

Phoma apiicola Kleb., Phoma root rot. Calif., Mich., N. Y., Ohio, ? Wis. (1); N. Y. (2)

Phyllosticta apii Hals., leaf spot. Del., N. J., P. R. (1)

APIUM cont.

Physarum spp. (in part P. cinereum (Batsch) Pers.), slime mold. Calif., Fla., N. Y., Ohio (1)

Pseudomonas apii Jaggen (P. jaggeni Stapp), bacterial leaf spot. Conn., Del., Fla., Ind., Mich., Minn., N. Y., N. Dak., Ohio (1)

Pythium spp., damping off, root rot, P. debaryanum Hesse reported in Colo., Conn., Fla., N. H.; P. ultimum Trow in Ohio (1)

Rhizoctonia solani Kuehn, damping off, root rot, sometimes pitting of stalks. Cosmopolitan (1).

Sclerotinia spp., damping off, stem rot (in fields); pink rot, watery rot (in transit and storage). General (1); Calif. (2). S. sclerotiorum (Lib.) DC., commonly reported, S. intermedia Ramsey and S. minor Jagger also identified.

Septoria apii (Briosi & Cav.) Chester, large leafspot, late blight. General (1, 2). The name S. apiicola Speg. has priority but its identity with the large leafspot pathogen is not confirmed.

S. apii-graveolentis Dorogin, small leafspot, late blight. Probably general, identified in Calif., Fla., Ind., Mass., Mich., Ohio, Ore., Wash. (1); Calif., Mich. (2). More destructive than the preceding but often occurring together, not discriminated in early reports.

Stemphylium ramulosum Sacc., on leaves, ? secondary leaf spot. Fla. (1). S. botryosum Wallr. is reported on seed.

Trichothecium roseum Lk. ex Fr., pink mold in storage. N. Y. (1)

Typhula variabilis Riess, storage rot. N. Y.

Verticillium albo-atrum Reinke & Berth., wilt. Calif. (1)

Calico -- unidentified (? alfalfa mosaic) virus. Calif. (1)

Crinkle-leaf -- unidentified virus. Calif. (1)

Curly top -- virus (Chlorogenus eutetticola Holmes, Beta virus 1 (K.M.Sm.). Ore. (1); also experimental in Calif. (1)

Mosaic -- virus. In part caused by one or more strains of cucumber mosaic virus (Marmor cucumeris Holmes, Cucumis virus 1 K.M.Sm.), distinguished as southern celery mosaic. Eastern and Southern States (1). In part caused by a different though perhaps related virus, known as western celery mosaic virus, reported in Calif. and Wash. (1, 2). A yellow mosaic caused by alfalfa mosaic virus (Marmor medicaginis Holmes, Medicago virus 1 K. M.Sm.) is reported in Calif. and (?) Mich. (1); dodder latent mosaic (Marmor secretum Bennett) may also cause systemic infection (1)

Pseudo-calico -- unidentified virus. Calif. (1)

Ring spot -- unidentified virus. Calif. (1)

Spotted wilt -- virus (Lethum australiense Holmes, Lycopersicon virus 3 K.M.Sm.). Calif., Hawaii (1)

Yellow spot -- unidentified virus (not spotted wilt). Calif. (1)

Yellows (virus yellows) -- virus (Chlorogenus callistephi Holmes, Callistephus virus 1 K.M.Sm.). Me., N. Y., Pa., Wis.; ? Utah, Wash. (1). In Calif. and perhaps other Western States virus

APIUM cont.

yellows is caused by C. callistephi var. californicus Holmes, Callistephus virus 1A K.M.Sm.

Blackheart (heart rot) -- physiological, attributed to wide fluctuations in soil moisture. General, especially Calif. and Fla.,; also in markets (1)

Brown stem (discoloration and pitting of stalks) -- probably physiological, usually in over-age plants, often associated with blackheart. Calif., Fla.

Cracked stem, stem canker -- boron deficiency. Occasionally reported in all celery districts, especially Fla., Mass., Mich., N. Y. (1)

Growth crack -- physiological, in part due to irregularities in nutrition and moisture, sometimes to boron deficiency. Fla. (1)

Hollow stem, pithiness -- physiological, sometimes caused by chilling or drought; perhaps sometimes genetic. Calif., Fla., Md., Pa. (1)

Red root -- physiological (with secondary fungi), associated with acid soils and phosphorus deficiency. Fla. (1)

ARRACACIA (UMBELLIFERAE)

ARRACACIA XANTHORRHIZA Bancr., APIO. Perennial herb of northern S. America, grown for edible roots.

Erysiphe polygoni DC., powdery mildew. P. R.

BUPLEURUM (UMBELLIFERAE)

BUPLEURUM FRUTICOSUM L., THOROWAX. Evergreen shrub of southern Europe, grown for ornament.

Heterodera marioni (Cornu) Goodey, root knot. Calif.

CARUM (UMBELLIFERAE)

CARUM CARVI L., CARAWAY. Perennial herb of Europe, grown for savory seed, locally naturalized in the Eastern and Central States; a wildlife food plant.

Heterodera marioni (Cornu) Goodey, root knot. ? Fla.

CENTELLA (UMBELLIFERAE)

CENTELLA ASIATICA (L.) Urban. Perennial herb of wet meadows in the

CENTELLA cont.
Southeastern and Gulf States, and tropical America; of food value for wildlife.

Heterodera marioni (Cornu) Goodey, root knot. Hawaii.
Septoria asiaticae Speg., leaf spot. P. R.
S. hydrocotyles Desm. Fla.

CICUTA (UMBELLIFERAE)

CICUTA spp., WATER-HEMLOCK. Coarse perennial herbs of bogs and meadows, especially C. BULBIFERA L. (1), C. MACULATA L. (2), C. OCCIDENTALIS Greene (3), other spp. (4); wildlife food plants, sometimes grown in wild gardens, but noted for toxic properties affecting persons and livestock.

Ascochyta thaspii Ell. & Ev., leaf spot. Wis. (2)
Cylindrosporium cicutae Ell. & Ev., leaf spot. Wis., ? W. Va. (2).
Plasmopara nivea (Unger) Schroet., downy mildew. Wis. (2)
Protomyces macrosporus Unger, leaf gall. Wis. (2)
Puccinia cicutae Lasch (0, I, II, III), rust. Me., N. Y., Wis., ? Mont., Nebr. (2); Ida. to Colo., Calif., and Ore. (3); Calif., Fla., Nev., Alaska (4)
Septoria sii Rob. & Desm., leaf spot. Wis. (1, 2), Kans. (2), Wyo. (3)
Uromyces scirpi (Cast.) Burr. (0, I), rust. Nebr., Wis. (1); Pa. to Fla., Colo. and Wis. (2) II and III on Scirpus spp.

CORIANDRUM (UMBELLIFERAE)

CORIANDRUM SATIVUM L., CORIANDER. European annual grown for savory seeds, locally escaped in various parts of the U. S.

Heterodera marioni (Cornu) Goodey, root knot. ? Fla.

DAUCUS (UMBELLIFERAE)

DAUCUS CARCTA L. var. SATIVA DC., CARROT. European annual or biennial, cultivated throughout the U. S., commercial production chiefly in Calif., Tex., La., N. Y., N. J., Ill., Pa., and Ohio. The prototype D. carota L., wild carrot or Queen Anne's-lace, is widely naturalized and a troublesome weed, especially in the Northeast.

Actinomyces scabies (Thaxt.) Güssow, scab. Calif., Mich., Pa., Wash.

DAUCUS cont.

Alternaria dauci (Kuehn) Groves & Skolko (Macrosporium carotae Ell. & Langl.), leaf blight. General.

A. radicina Meier, Drechs. & Eddy, black rot. Mass., N. Y., Pa., Ida., Wash., ? Calif. Also placed in Stemphylium as S. radicinum (Meier, Drechs. & Eddy) Neerg.

A. tenuis Nees ex Cda., secondary leaf spot and seed mold. Cosmopolitan.

Botrytis cinerea Pers. ex Fr., gray-mold rot. Cosmopolitan in storage and markets, sometimes in fields.

Centrospora acerina (Hartig) Newhall, storage rot. N. Y.

Cercospora carotae (Pass.) Solh., leaf spot, blight. General, especially in the Northeastern and Central States; also Hawaii, P. R., Virgin Is.

Cuscuta sp., commonly C. arvensis Beyr., dodder. Miss., N. Mex., N. Y., Tex., W. Va.

Diaporthe arctii (Lasch) Nits., on stems. Ga.

Erwinia carotovora (L.R.Jones) Holland, bacterial soft rot. General

Fusarium spp., dry rot. Ida., N. H.; occasional in markets. Associated with scab in Ariz. and Calif.; with wilt in N. Mex. Specific identity not determined but F. avenaceum (Fr.) Sacc. has been shown pathogenic to roots, F. moniliforme Sheldon has been isolated from seed.

Helicobasidium purpureum Pat., violet root rot. Ore., Wash.

Heterodera marioni (Cornu) Goodey, root knot. General in the South, occasionally in the Northeastern, North Central, and Pacific Coast States.

Penicillium spp., in part P. expansum Lk. ex Thom, blue mold rot. Occasional in transit and storage.

Phymatotrichum omnivorum (Shear) Dug., root rot. Ariz., Tex.

Phytophthora megasperma Drechs., root rot. Calif.

Pythium sp. (? P. ultimum Trow), damping off, wound rot. Ida.

Ramularia sp., leaf spot. Kans.

Rhizoctonia spp. (probably mostly R. solani), root canker, hairy root, scurf. Mich., N. Y., Ore., Wash.

(R. crocorum (Pers.) DC. ex Fr.): Helicobasidium purpureum

R. solani Kuehn, damping off (seedlings), crown rot (roots). General, especially in the Northeastern and Central States, also Tex. and Pacific Northwest. Sterile stage of Pellicularia filamentosa (Pat.) Rogers; this (probably) reported on carrots in N. Y.

Rhizopus spp. (especially R. tritici K. Saito and R. stolonifer (Ehr. ex Fr.) Lind), black mold rot Cosmopolitan in transit and storage.

Sclerotinia sclerotiorum (Lib.) DBy., watery soft rot, cottony rot. General. S. intermedia Ramsey and S. minor Jagger have also been identified in this connection.

Sclerotium rolfsii Sacc., southern blight. Ga. to Fla. and Tex.; Calif., P. R. Also reported in N. Y., probably the form known as S. delphinii Welch.

DAUCUS cont.

Septoria sp., on leaves. N. Y.

Stemphylium botryosum Wallr. and S. consortiale (Thuem.) Groves & Skolko are reported on seed. For S. radicinum (Meier, Drechs. & Eddy) Neerg. see Alternaria radicina

Trichothecium roseum Lk. ex Fr., pink-mold rot. Ind.

Typhula variabilis Riess, leaf rot. Ida.

Uromyces scirpi (Cast.) Burr. (O, I), rust. Ore. II and III on Scirpus.

Xanthomonas carotae (Kendr.) Dowson, bacterial blight. Calif., Ida., Iowa

Curly top -- virus (Chlorogenus eutetticola Holmes, Beta virus 1 K.M.Sm.). Ore., Utah

Mosaic -- unidentified (? aster yellows) virus. Mich., Wis. Western celery mosaic virus, Calif. Susceptibility to viruses of tobacco mosaic and peach yellow-red virosis by artificial inoculation has been demonstrated

Yellows (Rio Grande disease) -- virus (Chlorogenus callistephi Holmes, Callistephus virus 1 K.M.Sm.). Widespread -- Me. to Pa., Ill., and Wyo.; Ida., Ore., Wash.; La., Tex. In Calif. the strain of this virus known as C. c. var. californicus Holmes, Callistephus virus 1A K.M.Sm., causes a similar disease. Similar diseases reported as chlorosis in Wash., green dwarf and proliferation (? virescence) in Ida., and bunchy top in La. are thought to be of virus origin.

Black heart -- cause unknown, ? physiological. Wis.

Chlorosis -- magnesium deficiency associated with acid soil. Mass.

Root girdle -- cause unknown. Wash.

ERIGENIA (UMBELLIFERAE)

ERIGENIA BULBOSA (Michx.) Nutt., HARBINGER-OF-SPRING. Perennial herb of Eastern and Central States, grown in wild gardens.

Puccinia erigeniae (Orton) Arth. (O, I, III), rust. Ohio

ERYNGIUM (UMBELLIFERAE)

ERYNGIUM AQUATICUM L., BUTTON SNAKEROOT, ERYNGO. Perennial herb of wet ground in the Eastern and Central States and southward, a wildlife food plant. Other spp. are grown in wild gardens.

Cylindrosporium eryngii Ell. & Kell., leaf spot. Iowa, Kans., Wis.

Entyloma eryngii (Cda.) DBy., white smut. Iowa

Septoria eryngicola Oud. & Sacc., leaf spot. Wis.

FOENICULUM (UMBELLIFERAE)

FOENICULUM VULGARE Hill., FENNEL (1) and F. V. var. DULCE Alef., FINOCCHIO (2). Perennial herbs of Europe, (1) grown for savory foliage and seed, (2) for edible leaf-bases.

Botrytis cinerea Pers. ex Fr., gray mold rot. N. Y. (1)
Erwinia carotovora (L.R.Jones) Holland, bacterial soft rot. Ill. (2)
Heterodera marioni (Cornu) Goodey, root knot. ? Fla. (1)
Phymatotrichum omnivorum (Shear) Dug., root rot. Tex. (1)
Rhizoctonia solani Kuehn, damping off, stem pitting. Ga., N. J. (1)
Sclerotinia sclerotiorum (Lib.) DBy., stem rot. Ill., N. J., Tex. (2)

HERACLEUM (UMBELLIFERAE)

HERACLEUM LANATUM Michx., COW-PARSNIP. Coarse perennial herb of moist meadows in the Eastern, Central and Pacific Coast States, a wildlife food plant, sometimes grown in wild gardens.

Cylindrosporium heraclei [Fr.] Ell. & Ev., leaf spot. Calif., Colo., Ida., Mont., N. Dak., Utah, Wash., Wyo. Variously placed in Phloeospora, Septoria, and other genera; sometimes associated with Phyllachora heraclei (Fr.) Fckl. (? Mycosphaerella heraclei (Fr.) Petr.) but connection not confirmed.
Diaporthe arctii (Lasch) Nits., on stems. Calif.
Didymella exigua (Niessl) Sacc., on stems. Mont.
Fusicladium angelicae [Fr.] Ell. & Ev., leaf spot. Wis.
Naevia stenospora Sacc., on dead stems. Wash.
Phoma spp., on stems. P. asteriscus Berk., Me.; P. complanata (Tode ex Fr.) Desm., Calif., Colo., N. Mex., Utah, Alaska; P. heraceli Tracy, Colo.
Phyllosticta heraclei Ell. & Dearn., leaf spot. Ore., Alaska
Ramularia heraclei (Oud.) Sacc., leaf spot. General
Rhabdospora heraclei Earle, on stems. Nev.
R. pastinacina (Sacc.) Allesch., on stems and seeds. Alaska
Septoria heraclei (Lib.) Desm. See Cylindrosporium

HYDROCOTYLE (UMBELLIFERAE)

HYDROCOTYLE spp., PENNYWORT. Creeping perennials of moist to aquatic habitats, in the Eastern and Central States and southward,, some also western; several are wildlife food plants. H. americana L. (1), H. ranunculoides L. f. (2), H. umbellata L. (3) are endemic; H. rotundifolia Roxb. (4) adventive from tropical Asia, has become a troublesome lawn weed in certain Eastern areas.

HYDROCOTYLE cont.

Cercospora hydrocotyles Ell. & Ev., leaf spot. Md. to Fla. and Tex. (1, 2, 3)
Entyloma hydrocotyles Speg., white smut. Calif. (2)
Heterodera marioni (Cornu) Goodey, root knot. ? Fla. (1, 3), Md. (4)
Puccinia hydrocotyles (Lk.) Cke. (II), rust. Del. to Fla. and Tex., also Ariz., Calif., Nev., Utah (2,3)
Septoria hydrocotyles Desm., leaf spot. N. Y., Wis. (1); Miss. (sp.)
S. pallidula Dearn. & House. N. Y. (1)
Synchytrium aureum Schroet., leaf gall. Wis. (1)
S. hydrocotyles M. T. Cook, leaf gall. La. (sp.)
Uromyces scirpi (Cast.) Burr. (C, I), rust. Del., Fla., Mass. (3)

LIGUSTICUM (UMBELLIFERAE)

LIGUSTICUM spp., as L. CANADENSE (L.) Britton (1), L. SCOTICUM L., SEA-LOVAGE (2), and other spp. (3). Native perennial herbs, some of food value for wildlife.

Aecidium ligustici Ell. & Ev. (0, I), rust. Me. (2)
Cylindrosporium heraclei [Fr.] Ell. & Ev., leaf spot. Calif., Wyo. (3)
Diaporthe arctii (Lasch) Nits., on stems. Ga. (1)
Mycosphaerella sp., on stems. Ga. (1)
Nyssopsora echinata (Lev.) Arth. (III), rust. Calif., Ida., N. Mex., Ore., Utah, Wash. (3)
Plasmopara nivea (Unger) Schroet., downy mildew. Alaska (2)
Puccinia ligustici Ell. & Ev. (III), rust. Calif., Colo., Ida., Nev., Ore., Utah, Wash., Wyo. (3)
Septoria sp., leaf spot. Calif. (3)
S. ligustici Guba, Mass. (2)
Urophlyctis pluriannulata (Berk. & Curt.) Farl., leaf gall. Ore., Wash., Wyo. (3)

LOMATIUM (UMBELLIFERAE)

LOMATIUM spp., LOMATIUM, BISCUIT-ROOT. Perennial, tuberous-rooted herbs of prairies, plains and foothills, ranging nearly throughout the Western States; of significant forage value and also furnish food for wildlife, some also grown for ornament in wild gardens. Prominent spp. include L. ANGUSTATUM (Coult. & Rose) St. John (1), L. FOENICULACEUM (Nutt.) Coult. & Rose (2), L. GRAYI Coult. & Rose (3), L. ORIENTALE Coult. & Rose (4), L. TRITERNATUM (Pursh) Coult. & Rose (5), and others (6)

LOMATIUM cont.

Cercosporella herpotrichoides Fron, on stems. Ida., Ore., Wash. (5)
Phoma lomatiae Speg., on leaves. Ore. (5)
? Phyllachora sp., leaf spot. Wash. (3,6)
Plasmopara nivea (Unger) Schroet., downy mildew. Mont.
Puccinia asperior Ell. & Ev. (0, I, III), rust. On L. dissectum (Nutt.) Math. & Const. in Calif., Ore., Wash.
P. jonesii Pk. var. typica Arth. (0, I, III), rust. Ore. (1); Kans., Nebr. (2); Utah, Wash. (3); Ariz., Colo., Nebr., Okla., Wyo. (4); Ore., Wash. (5); Mont. to Okla., Calif. and Wash. (6)
P. ligustici Ell. & Ev. (III), rust. Ida., Wash. (6)

OSMORHIZA (UMBELLIFERAE)

OSMORHIZA spp., SWEET CICELY, SWEETROOT. Perennial herbs of woodlands and meadows in the Eastern, Central, and Western States, as O. CLAYTONI (Michx.) Clarke (1) and O. LONGISTYLIS DC. (2) in the East; O. OCCIDENTALIS (Nutt.) Coult. & Rose (3), and other spp. (4), in the West. Of minor forage value, especially (3), also wildlife food plants; (1) and (2) are grown in wild gardens for ornament and aromatic seeds.

Cercospora osmorhizae Ell. & Ev., leaf spot. Ill., Ohio, Wis. (1); Md., Ohio, Wis. (2)
C. praegrandis Sprague. Ore. (4)
Colletotrichum dematium (Fr.) Grove, on stems. Pa. (1); Nebr., Va. (2)
Fusicladium angelicae [Fr.] Ell. & Ev., leaf spot. Wash. (4)
Mycosphaerella sp., on stems. Nev. (3)
M. glycosmae Tr. & Earle. Colo. (3)
Phleospora osmorrhizae (Pk.) House, leaf spot. N. Y. (1,2): Iowa, Wis. (2); Mont., Wyo. (3); Calif., Colo., Ida., Wash., Wyo. (4)
Puccinia pimpinellae (Strauss) H. Mart. (0, I, II, III), rust. General (1,2,3)
Ramularia reticulata Ell. & Ev., leaf spot. Wis. (1); Va., Wis. (2); Wyo. (4)
Septoria aegopodii Desm., leaf spot. Ohio (1); N. Y., N. Dak., Wis. (2)
S. micropuncta Ell. & Ev. Va. (1)
S. occidentalis Ell. & Ev. (nom. nud.). Wash. (3,4)
Sphaerodothis neowashingtoniae Shear, on leaves. Calif. (4)
Urophlyctis pluriannulata (Berk. & Curt.) Farl., leaf gall. Mont. (2)

PASTINACA (UMBELLIFERAE)

PASTINACA SATIVA L., PARSNIP. European biennial, cult. as a garden vegetable or field crop mainly in the Northeastern and North

PASTINACA cont.
Central States; also escaped and locally established as a weed.

Actinomyces scabies (Thaxt.) Güssow, scab. Wash.
Agrobacterium tumefaciens (E.F.Sm. & Town.) Conn, crown gall. Va.
Alternaria sp., leaf spot. N. J. A. tenuis Nees ex Cda. occurs on seed.
Botrytis cinerea Pers. ex Fr., gray-mold rot. Occasional in transit and storage.
Cercospora pastinacea (Sacc.) Pk., leaf spot. General. Md., Nebr., N. Y., W. Va.
C. pastinacina Solheim, leaf spot. Calif., Ind., Mich., N. Y.
Cylindrosporium pastinacae (West.) Lind, leaf spot. Reputed to be the conidial stage of Phyllachora pastinacae (West.) Rostr. but asci not found in U. S. Utah, Wis.
Cyphellopycnis pastinacae Tehon & Stout, on stems. Ill.
Diaporthe arctii (Lasch) Nits., on stems. N. Y.
Erwinia carotovora (L.R.Jones) Holland, bacterial soft rot. Occasional in storage and markets.
Heterodera marioni (Cornu) Goodey, root knot. N. J. to Kans. and southward; Colo., Conn., Ore.
Phoma nebulosa (Pers. ex Fr.) Berk., ? root rot. Pa.
Phomopsis diachenii Sacc., on seeds (achenes). N. Y., Wis.
Phyllachora pastinacae (West.) Rostr.: See Cylindrosporium
Phymatotrichum omnivorum (Shear) Dug., root rot. Ariz., Tex.
Phytophthora parasitica Dastur, dry rot. Pa.
Ramularia pastinacae (Karst.) Lindr. & Vest., leaf spot. Ind., Mass., N. Y., N. Dak., Ohio, Ore., Wash., Wis.
Rhabdospora pastinacina (Sacc.) Allesch., on stems. N. Y., Utah
Rhizoctonia solani Kuehn, black scurf, ? root rot. N. Car., Tex., Wash.
Rhizopus spp., black mold rot. Occasionalin storage and markets.
Sclerotinia sclerotiorum (Lib.) DBy., watery soft rot. Calif., Ind., La.

Mosaic -- unidentified virus. Ore., Utah
Yellows -- virus (Chlorogenus callistephi Holmes, Callistephus virus 1 K.M.Sm.). Me., N. Y., Pa., S. Dak., Tex., Wash., Wis. Also C. c. var. californicus Holmes, Callistephus virus 1A K. M. Sm., in Calif.

Heart rot -- boron deficiency. N. Y.

PETROSELINUM (UMBELLIFERAE)

PETROSELINUM CRISPUM (Mill.) Nym., PARSLEY. Biennial herb of Europe grown widely in gardens as a garnish, commercially chiefly in Tex., N. J. Va., Calif.

Alternaria dauci (Kuehn) Groves & Skolko, leaf blight. Conn.

PETROSELINUM cont.

Alternaria sp. reported as associated with leaf spot in N. J. and Tex. may be this. A. radicina Meier, Drechs. & Eddy and A. tenuis are also reported on seed.

Botrytis cinerea Pers. ex Fr., gray mold rot. Alaska

Cercospora petroselini Sacc., leaf spot. N. J.

Cuscuta sp., dodder. Tex.

Ditylenchus dipsaci (Kuehn) Filip., stem nematode. Calif.

Erwinia aroideae (Town.) Holland, bacterial soft rot. Calif. E. carotovora (L.R.Jones) Holland, Fla.

Fusarium sp. (? F. oxysporum Schlecht.), wilt. N. J., Va.

Heterodera marioni (Cornu) Goodey, root knot. Fla., Ga., Kans., Tex., Va.

Phymatotrichum omnivorum (Shear) Dug., root rot. Tex.

Pythium sp., damping off. N. J.

Rhizoctonia solani Kuehn, damping off, root rot. N. J., N. Y.

Solerotinia sclerotiorum (Lib.) DBy., stem rot. Conn., Ga., La., N. Y., Pa., Tex., Va.

Septoria petroselini Desm., leaf blight. Calif., Conn., N. J., N. Y.

Stemphylium botryosum Wallr., on seed.

Curly top -- virus (Chlorogenus eutetticola Holmes, Beta virus 1 K.M.Sm.). Calif.

Yellows -- virus (Chlorogenus callistephi Holmes, Callistephus virus 1 K.M.Sm.). Colo., N. Y., Tex. Also C. c. var. californicus Holmes, Callistephus virus 1A K.M.Sm., in Calif. A yellows disease of nonparasitic origin is reported in N. Y.

PIMPINELLA (UMBELLIFERAE)

PIMPINELLA ANISUM L., ANISE. European annual grown in herb and medicinal plant gardens for flavoring

Cercospora malkoffii Bubak, leaf spot. Va.

Phymatotrichum omnivorum (Shear) Dug., root rot. Tex.

Puccinia pimpinellae (Strauss) H. Mart. (O, I, II, III), rust. Calif.

Sclerotinia sclerotiorum (Lib.) DBy., stem rot. Calif., Tex.

PSEUDOCYMOPTERUS (UMBELLIFERAE)

PSEUDOCYMOPTERUS ANISATUS (A. Gray) Coult. & Rose (1), and P. MONTANUS (A. Gray) Coult. & Rose (2). Perennial alpine herbs of the Rocky Mountain States, wildlife food plants.

Mycosphaerella sp., on stems. Colo.

Puccinia musenii Ell. & Ev. (III), rust. Colo., Mont., Wyo. (1)

P. pseudocymopteri Holw. (O, I, II, III), rust. Utah (1); Colo.,

PSEUDOCYMOPTERUS cont.
N. Mex., Utah, Wyo. (2)

SANICULA (UMBELLIFERAE)

SANICULA spp., SNAKE-ROOT, SANICLE. Perennial herbs of woodlands in the Eastern and Central States and southward, others western; especially S. CANADENSIS L. (1), S. MARILANDICA L. (2), other spp. (3). Wildlife food plants.

Ascochyta thaspii Ell. & Ev., leaf spot. Wis. (2,3)
Cercospora saniculae J.J.Davis, leaf spot. Wis.
Entyloma saniculae Pk., white smut. Ill., Ind., Iowa, Md., N. Y., Va., Wis. (2); Ala., Calif., Ore., Wis. (3)
Puccinia marylandica Lindr. (0, I, II, III), rust. Mo., Tenn., W. Va. (1); Colo., Ind., N. Car., Pa., Tenn., Wis. (2); N. Y. to Fla., Mo. and S. Dak. (3)
Septoria saniculae Ell. & Ev., leaf spot. Nebr. (1), Wis. (2)
Urophlyctis pluriannulata (Berk. & Curt.) Farl., leaf gall. Miss. (1); Ill., Iowa, Mich., N. Y., Wis. (2); Ala., Calif., Ore., Wash., Wis. (3)

SIUM (UMBELLIFERAE)

SIUM SUAVE Walt., WATER-PARSNIP. Tall perennial of marshes ranging nearly throughout the U. S.,; a wildlife food plant.

Cercospora sii Ell. & Ev., leaf spot. Iowa, Wis.
Phyllosticta sp., leaf spot. N. Dak.
Physoderma vagans Schroet.; leaf spot. Wis.
Septoria sii Rob. & Desm., leaf spot. Me., N. Y., N. Dak., Wis.
Uromyces scirpi (Cast.) Burr. (0, I), rust. N. Y., N. Dak., Wis.

TAENIDIA (UMBELLIFERAE)

TAENIDIA INTEGERRIMA (L.) Drude. Perennial herb of Eastern and Central States and southward, sometimes grown in wild gardens

Fusicladium angelicae [Fr.] Ell. & Ev. (? Cercospora platyspora Ell. & Holw.), leaf spot. Wis.
Puccinia angelicae (Schum.) Fckl. (0, I, II, III), rust. Ind., Mich., Mo., N. Y., Wis.
Septoria pimpinellae Ell., leaf spot. Minn.

TRACHYMENE (UMBELLIFERAE)

TRACHYMENE CAERULEA R.Graham, BLUE LACE-FLOWER. Annual herb of

TRACHYMENE cont.
Australia, grown for ornament.

Fusarium sp., root rot. Conn., N. J.
Heterodera marioni (Cornu) Goodey, root knot. Fla.
Rhizoctonia solani Kuehn, stem rot. N. J.

ZIZIA (UMBELLIFERAE)

ZIZIA AUREA (L.) Koch, MEADOW-PARSNIP (1). Perennial herb of meadows and marshes in the Eastern and Central States and southward; sometimes grown in wild gardens. Z. CORDATA (Walt.) DC. (2) is a woodland plant of similar range and westward.

Ascochyta thaspii Ell. & Ev., leaf spot. Wis. (1, 2)
Cercospora ziziae Ell. & Ev., leaf spot. Wis. (1), Pa. (2)
Cylindrosporium ziziae Ell. & Ev., leaf spot. N. Dak., Wash., Wis. (2)
Erysiphe polygoni DC., powdery mildew. Pa., W. Va.
Puccinia ziziae Ell. & Ev. (III), rust. Wash. (2)
Septoria ziziae Ell. & Ev., leaf spot. N. Dak. (2)
Urophlyctis pluriannulata (Berk. & Curt.) Farl., leaf gall. Wis. (1)

With this section the Check List Revision has covered all the principal field and fruit crops of the United States, and also the trees and shrubs and the cultivated and native grasses. There remains a miscellaneous residue consisting of a few important vegetable crops, numerous herbaceous ornamentals, and plants of other economic use. In order to cover these systematically the plan followed in recent sections of the List will be continued, that is, all the economic genera of each plant family will be treated consecutively; however, the families will be taken up in alphabetic order instead of selecting those containing certain crop plants. Thus the first family in the new series of sections will be Acanthaceae, which will be followed in alphabetic order by all families that previously have been passed or are incompletely covered.

The present status of the Check List Revision is shown in the following table which lists the completed families together with the location in the Plant Disease Reporter where their treatment can be found. The principal genera of woody plants, which were taken up in alphabetic sequence without reference to family relationships, also are listed.

TREES AND SHRUBS*

	PDR Vol. 24. 1940
Abies	142-148
Acer	191-201
Aesculus-Aleurites	246-249
Alnus-Ampelopsis	266-274
(Amygdalus)	278-282
Betula	374-379
Carya	444-449
Castanea	464-468
Catalpa-Celtis	498-503
	PDR Vol. 25. 1941
Citrus	36-46
Clematis-Cornus	76-87
Crataegus-Cydonia	108-114
Eucalyptus-Euonymus	161-165
Fagus-Ficus	204-209
Fraxinus Gleditsia	214-224
Ilex-Juglans	280-289
Juniperus-Larix	300-310
Ligustrum-Lonicera	324-331
Magnolia	344-347
Malus (apple)	367-377
Nyssa-Ostrya	424-430
Picea	461-469
Pinus	487-533
Populus	545-547
	PDR Vol. 26. 1942
Prunus (except peach and almond)	23-44
Prunus (peach and almond), see Amygdalus	
Pseudotsuga	58-60
Pyrus (pear)	62-67
Quercus	84-91
	96-104
	126-137
Rhododendron	165-171
Rhus-Ribes-Robinia	176-188
Rosa	205-210
Rubus	262-273
Salix	297-302
	311-316
Spiraea-Syringa	396-403
Taxodium-Taxus	414-418
Thuja-Tilia-Tsuga	422-430
Ulmus	460-468

(Trees and Shrubs)

	PDR Vol. 26. 1942
Vaccinium	480-485
Viburnum-Vitis	505-512

GRAMINEAE AND CYPERACEAE (Cereals, Grasses, and Sedges)

	PDR Vol. 27. 1943
Agropyron	118-126
Agrostis-Avena	175-193
	PDR Vol. 28. 1944
Bambusa-Bromus	1138-1147
Calamagrostis	1162-1164
	PDR Vol. 29. 1945
Carex	1-6
Cenchrus-Cyperus	34-39
Dactylis-Eleusine	68-76
Elymus-Euchlaena	132-139
Festuca-Holcus	186-194
Hordeum-Koeleria	222-228
Lolium-Muhlenbergia	276-281
Oryza-Panicum	328-334
Phalaris-Phleum	374-377
Poa	416-422
Saccharum	470-474
Scirpus-Secale-Setaria	506-512
Sorghum	542-547
Triticum	624-631
Zea	660-667

LEGUMINOSAE

Arachis	689-691
Crotalaria	714-715
	PDR Vol. 30. 1946
Lathyrus-Lespedeza-Lupinus	4-12
Medicago-Melilotus	36-43
Phaseolus	66-74
Pisum	94-97
Soja	132-135
Trifolium	176-181
Vicia-Vigna	218-224

BROMELIACEAE

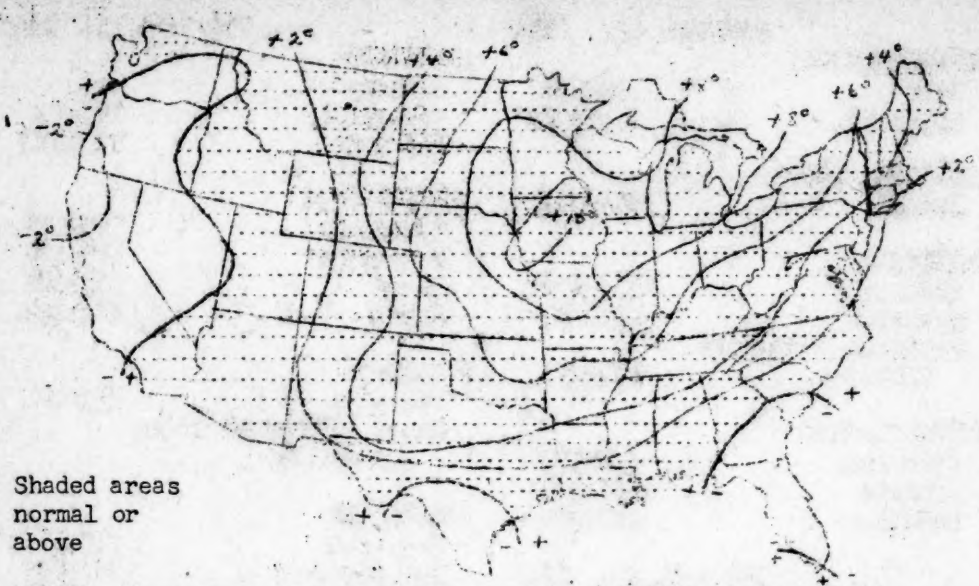
Ananas	299-300

* Only the more important genera are listed here; the location of the others can be approximated from their alphabetic order

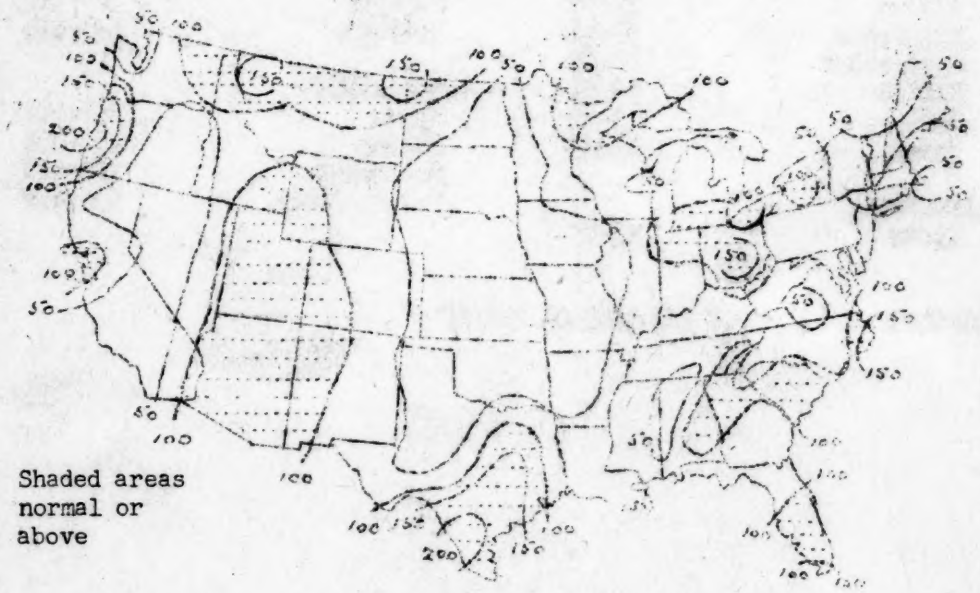
	PDR Vol. 30. 1946
CHENOPODIACEAE	
Beta	302-307
Spinacia	350-352
CONVOLVULACEAE	
Ipomoea	354-359
CRUCIFERAE	
Armoracia	388-390
Brassica	391-399
Lepidium-Matthiola-Raphanus	429-434
CUCURBITACEAE	
Citrullus	479-481
Cucumis	482-486
Cucurbita	487-490

	PDR Vol. 31. 1947
LILIACEAE	
Allium	33-38
Asparagus	39-41
Hyacinthus	47-48
Lilium	48-51
Tulipa	78-79
Yucca	81-83
LINACEAE	
Linum	83-85
MALVACEAE	
Althaea	124
Gossypium	125-130
Hibiscus	130-132
POLYGONACEAE	
Fagopyrum	174-175
Polygonum	175-179
Rheum	179-180
Rumex	180-182
ROSACEAE	
Fragaria	218-221
Rosa: See under Trees and Shrubs	
SOLANACEAE	
Capsicum	250-253
Lycopersicon	256-263
Nicotiana	284-289
Petunia	289-290
Solanum	341-354
UMBELLIFERAE	
Apium	399-401
Daucus	402-404
Pastinaca	407-408
Petroselinum	408-409

DIVISION OF MYCOLOGY AND DISEASE SURVEY



Map I. Departure of Mean Temperature from Normal, August 1947



Map II. Percentage of Normal Precipitation, August 1947

AUGUST WEATHER

From U. S. Department of Commerce, Weather Bureau, Weekly Weather and Crop Bulletin for week ending September 9, 1947